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COMPUTERWORLD

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Grandma's Packard Bell radio and those PC clones wearing the same label have very little in common. Page 65.

Apple getting aggressive to protect valuable but vulnerable position in laser printer market. Page 31.

Thailand's demographic database earned a *Computerworld Smithsonian Award* for Ministry of the Interior's efforts to computerize social planning. Page 14.

Tomorrow is D day for Dbase

BY PATRICIA KEEFE
CW STAFF

NEW YORK — The fix is on, but will it take?

A shaky Ashton-Tate Corp. will have its fingers crossed tomorrow when a reportedly stable and able Dbase IV, Release 1.1 — 18 months in the fixing — hits retail shelves, lobbing the ball into the users' court.

The Torrance, Calif.-based developer's credibility, as well as that of thousands of corporate users who urged their companies to standardize on Dbase IV, is on the line, said Adam Green, a Dbase author and owner of Adam Green Seminars in Lexington, Mass.

"This will be the most thoroughly tested product in microcomputer history," Green predicted, noting that its predecessor, Dbase IV, Release 1.0, tended to crash "spontaneously" because its memory

Continued on page 6

DEC set for $400M cutback

BY MARYFRAN JOHNSON
CW STAFF

BOSTON — Moving to offset fourth-quarter losses that gave Digital Equipment Corp. its first bitter taste of red ink last week, DEC will announce "within a matter of days" the details of its plan to cut more than 5,000 employees from the payroll, a DEC official said last week.

Jack Smith, senior vice-president of operations, said the next phase of a voluntary severance program will move faster and be far less generous than past incentives. The first program ended July 1 with 3,000 DEC employees opting to take what company insiders call "the buyout."

"We want to get this behind us by the end of the year," Smith said of the goal to trim back from 124,000 employees worldwide to 119,000 by January 1991. "This is really a gut-wrenching business."

DEC's $256.7 million loss in the fourth quarter ended June 30 was caused mainly by its decision to set up a $400 million cash reserve to cover severance packages, employee retraining and office space consolidations. Yet even without the drain of the cash reserve, net income in the final quarter was down to $85.2 million, which is 73% lower than the $313 million profit for the corresponding quarter in 1989.

In discussing the company's financial troubles at a press conference last week, Smith steered away from suggestions that the financial downturn meant disaster for the world's second-largest computer company.

"Certainly, we don't feel good about it," Smith acknowledged. "But we do feel our product strategy is intact and

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Pressure cooker

Throughout a year of stagnant sales growth, DEC has made little progress in cutting overhead

	Revenue (in billions)	Sales and administrative expenses (in millions)
6/89	$3.49	$998
9/89	$3.13	$939
12/89	$3.18	$961
3/90	$3.26	$1,014
6/90	$3.36	$1,056

CW Chart: Paul Mock

Clouds on the horizon

- Microsoft shoots through $1 billion sales ceiling but warns that new investment in networking products distribution will cut into profit margins next year.
- European market keeps earnings up for Compaq and other vendors, but signs of a slowdown across the Atlantic could saddle already anemic domestic sales. Stories, page 4.

No 18-minute gap with Nixon on-line

PC-driven reminiscences run gamut from Henry the K to The King

BY JAMES DALY
CW STAFF

YORBA LINDA, Calif. — It has been 16 years since Richard M. Nixon disappeared in a helicopter into the muggy skies over Washington, D.C., after he resigned the presidency. Yet he remains one of the more controversial figures the 20th century has produced.

So if you are still puzzling over any of the old familiar questions — what he knew and when he knew it, for instance — there is finally a way to get answers: at the newly opened Richard Nixon Presidential Library and Birthplace. With the aid of computer technology, you can practically ask the man himself.

Tucked within the limestone, Spanish-style building on a patch of suburban Los Angeles once dotted with orange and lemon trees is The Presidential Forum, an interactive video theater. State-of-the-art computer design and some imaginative flair create the experience of a casual yet intimate meeting with the former president in a way in which he has never been seen before.

AP/Wide World

President Nixon's departure *from the White House left much unanswered*

John Kalb, business administrator at Exhibit Technology, Inc., which put together the presentation, said the exhibit will not only fascinate the day-tripper but will also serve successive generations of historians. "It's important to question historical figures," he said. "Imagine if we could ask Lincoln about the reality of the Emancipation Proclamation or what General Lee

Continued on page 87

ISDN gear still doesn't play in Peoria

BY JOANIE M. WEXLER
CW STAFF

While businesses are expressing a decided willingness to explore the viability of Integrated Services Digital Network, market conditions are tying users' hands and leaving ISDN customer premises equipment vendors in the lurch.

As the local telephone companies plod along, upgrading their equipment to ISDN, users are settling into other wide-area communications solutions, making ISDN-only approaches for start-ups risky. ISDN end-user products make more sense for full-service vendors that offer the products as only one segment of their business, according to analysts, because such companies can better afford to wait a year or more before they see any volume sales.

They'll be waiting, users said, because without widespread availability of ISDN lines, many companies are simply not candidates for the technology.

"ISDN might fulfill our price/performance requirements, but our locations are in rural areas

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NEWSPAPER

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Quotable

"ISDN might fulfill our price/performance requirements, but our locations are in rural areas where the only twisted pair is barbed wire."

TOM TERRY
NORWEST TECHNICAL SERVICES

On the limited availability of ISDN lines. See story page 1.

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59 As an inexpensive extension to local-area networks, **ISDN gateways** could be just the ticket. By Jeffrey N. Fritz.

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From a recent report on the business desktop by London-based Ovum Ltd.: "The PC software boom of the 1980s, which enriched suppliers, will give way in the 1990s to a hard slog as vendors try to provide consistent user interfaces and links among products . . . In 1995, desktop systems will run MS-DOS buried under a graphical user interface layer, and packages from different vendors will share and exchange information. Users will be able to create compound documents, which combine text, image, data, graphics and spreadsheet formulae in a single object without losing the data originally contained in the different formats."

An ISDN/LAN gateway can delight scattered users. Page 59.

Rich Frishman

The Pacificorp IS team, including Brian Hedman and Wayne Horscroft, has dealt with cutting back on systems while expanding access to those that remain. Page 25.

EXECUTIVE BRIEFING

■ **The viability of ISDN for far-flung organizations** remains hampered by the trailing-edge technology of many local phone companies. Telecommunications managers at user companies are impressed with the price/performance and applications potential of ISDN but figure it will be about two years before phone lines in remote areas are capable of carrying ISDN traffic. That market lag is making it rough for small vendors of ISDN customer premises equipment. **Page 1.**

■ **"High-tech, high-touch"** is the new motto of the hotel industry, which is attempting to use information systems to upgrade and customize personal service. After simply automating reservations and other functions in the 1980s, the major chains are now taking the next step with IS. Innovations range from providing employees with data on guests' past preferences to check-in terminals on hotels' airport shuttle buses. **Page 51.**

■ **DEC jarred the industry** with the first quarterly loss in its history and will slash more than 5,000 jobs, but analysts and customers don't believe the bottom has dropped out. Blaming a sluggish economy and increased competition rather than internal problems, they expressed confidence in DEC's ability to bounce back. **Page 1.** Throughout the industry, U.S. sales are slow; even high-flying Compaq reported barely increased domestic revenue. **Page 4.**

■ **There was good news and bad news** from a Washington, D.C., group studying U.S. technology policy. Its report said the U.S. lags in high-tech manufacturing and chip production but leads in creativity-intensive areas such as architecture and software. However, foreign competitors are chipping away at that lead, too. **Page 88.**

■ **Four independent Pepsico subsidiaries** have come together to coordinate a critical piece of IS strategy — a point-of-sale data collection system. Taco Bell, Kentucky Fried Chicken, Pizza Hut and Pepsico's food supply units inked a joint contract with tiny vendor Corporate Microsystems, marking the first major cooperative buying decision in IS among Pepsico units. **Page 7.**

■ **Unisys may be struggling financially,** but the new products, from mainframes to departmental computers, keep on rolling out. **Page 89.**

■ **CIO turnover is indeed on the rise,** according to a New York executive search company. The organization says the average tenure of an IS boss has dropped to 2½ years. **Page 51.**

■ **The core of Federal Express'** fabled package tracking system is none other than good old IMS. Fed Ex is currently migrating to IBM's IMS Version 3.1, which is slated to handle some 13 million transactions per day. **Page 23.**

■ **Software vendor protection against copyright infringement lawsuits** is very difficult, according to legal experts. Although some standard protections exist, there is nothing comparable to real estate title insurance to guarantee immunity. **Page 68.**

■ **On-site this week:** A hardware philosophy of "interchangeable parts" helped Pacificorp in Portland, Ore., merge two separate IS operations. Formed by the 1989 merger of Pacific Power and Light and Utah Power and Light, Pacificorp maintained both IBM and DEC systems while consolidating staffs and data centers. **Page 25.** The U.S. Public Health Service believes that electronic exchange of information could be a life-or-death matter. The agency has developed an interagency electronic mail system, based on software from Softswitch, that allows disparate government agencies to share research data on AIDS and other diseases. **Page 42.**

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Microsoft planning LAN attack

BY JIM NASH
CW STAFF

Microsoft Corp. reported last week that it had soared over the $1 billion sales milepost, but executives said profit margins may be lower next year when the company starts an all-out offensive on the local-area network market.

"No one's going to lose as much, invest as much in networks as we will next year," Microsoft Chief Executive Officer Bill Gates told reporters after year-end financial figures were released last Wednesday.

Frank Gaudette, Microsoft's chief financial officer, told analysts Thursday that revenue hit $1.18 billion, 47% greater than 1989's $803 million total. The Redmond, Wash.-based software giant chalked up an after-tax profit margin of 23%, Gaudette said.

In the fourth quarter, the company posted revenue of $336.9 million, up from $220.2 million a year earlier, with profits climbing to $79.9 million from $45.3 million.

Continued strength in sales, particularly that of the company's newly released Windows Version 3.0, accounted for the bulk of Microsoft's rise, said Mike Hallman, president and chief operating officer. Systems Software Senior Vice-President Steve Ballmer said 800,000 copies of Windows 3.0 have been sold or upgraded worldwide so far.

However, it was Ballmer who declared a jihad, or holy war, on the LAN front. As announced in April, Microsoft will abandon its reliance on direct-sales and OEM strategies for LAN Manager Version 2.0 in favor of retail sales.

While refusing to say how much Microsoft will put into its effort to dislodge LAN leader Novell, Inc., Gates said the company is planning to hire 3,000 new employees this year. "Hundreds and hundreds" will be going to networking development and sales, Gates said.

About $16 million will be spent marketing LAN Manager Version 2.0, Ballmer said, with another $2 million going to outside development. Microsoft is culling 600 resellers to sell the new product in the U.S.

Gates explained that Microsoft will specifically target key LAN attributes in its development work: remote administration, distributed software, naming services and security.

Some analysts attending the meeting said the strong hints that margins may be lower next year did not bother them. Nancy Zevenbergen, principal at Zevenbergen Capital, Inc. in Seattle, said she was confident that Microsoft will continue to perform well above expectations for a high-tech company of its size.

"In terms of what they have told Wall Street over the years, they have delivered," Zevenbergen said. "They haven't stumbled yet."

U.S. Steel and Carnegie Pension Fund analyst P. Janet Ramkisson expressed more caution, particularly about Microsoft's new emphasis on LAN Manager: "PC software and networking software are two different markets." Dethroning Novell "is a lot bigger challenge than is being let on here," she said.

Very happy birthday

Microsoft kicked off its 15th anniversary celebration by breaking the $1 billion sales barrier

Fiscal year	Sales	Net income
1986	$197.51	$39.52
1987	$345.89	$71.88
1988	$590.83	$123.91
1989	$803.53	$170.54
1990	$1,183.45	$279.18

(in millions)

CW Chart: Marie Haines

U.S. market still a drag for computer industry

BY NELL MARGOLIS
CW STAFF

New trends remained in scant supply as computer industry companies continued to post second-quarter earnings last week, noted one Wall Street analyst. However, he added, two oldies but baddies reasserted themselves with vigor.

"The first trend is that the U.S. market is still bad for just about everybody," said Rick Martin, an analyst at Prudential-Bache Research. "The second is that Europe is great for most of them, but it's slowing down."

Take Compaq Computer Corp. The personal computer company reported revenue of $862 million, up 19% over the same quarter last year. Second-quarter sales would have been even stronger, said Chief Executive Officer Rod Canion, had they not been curtailed by product shortages triggered by an inventory drain brought on by strong first-quarter sales. Compaq's net income for the quarter increased 24% to $104 million.

Despite the apparently encouraging numbers "even with real highfliers like Compaq," Martin said, the domestic and foreign growth percentages are discomforting. "Compaq's U.S. revenues grew 1.6% — whoop-de-doo," he said.

International sales, which were responsible for 46% of Compaq's overall 1989 revenue and are contributing 53% of the firm's bottom line, grew 42%. "That's great growth," Martin said, "but it's not as great as it was last year."

On the other hand, said Jean Orr, an analyst at Labe, Simpson & Co., commenting on the industry as a whole, "We came into the year expecting that demand from Europe would be somewhat lessened. It's mostly economy-related."

So said Data General Corp., which pointed to sluggish industrywide demand for proprietary systems and overall pricing pressures as largely responsible for a $21.4 million quarterly net loss and a 1% revenue decline to $302.4 million for the struggling minicomputer maker.

DG CEO Ronald Skates conceded disappointment but looked on the bright side: Revenue from DG's reduced instruction set computing (RISC)-based Aviion line increased significantly, he said. In addition, operating expenses were down by almost $14 million compared with last year's third quarter, Skates said.

Once-dazzling Network Equipment Technologies Corp. (NET) reported a net loss of $13.3 million on revenues down 38% to $26 million. NET's sheen was tarnished last April by bookkeeping infractions, which caused the company to revise previous quarterly statements downward, and allegations of insider trading at the managerial level. The company and analysts alike largely attributed the poor showing to a notable slackening among the firm's sales force and an apparent buying freeze in the wake of the winter-quarter brouhaha.

Easy to target, such problems could be difficult to reverse, several analysts said last week. NET is making a good stab at it, they added: Its earnings report also included the announcement of a substantial management overhaul that puts recently appointed company President Daniel Warmenhoven, an IBM and Hewlett-Packard Co. veteran with a good reputation on Wall Street and in the industry, into the CEO's office as well. Former CEO Bruce Smith will remain as chairman of the board until Dec. 31, when he will leave NET "to pursue venture capital activity." Chief Financial Officer Barrett Roach resigned both his office and his board seat; Vice-President of Finance Craig Gentner stepped up to the CFO post.

"The company has excellent products and a new management team," noted Steven Levy, an analyst at Hambrecht & Quist, Inc. While NET "did not sell a lot of equipment and systems in April and May, June was a very strong month," he said.

Other earnings news included the following:

- Amdahl Corp. posted revenue of $519 million and a $46.3 profit, respective increases of 10% and 41% over revenue and net income reported for last year's comparable quarter.
- RISC pioneer Mips Computer Systems, Inc. reported a 75% revenue jump to $39.6 million and net income of $4 million, compared with last year's second-quarter net loss of $2 million.
- Systems integrator Electronic Data Systems Corp. logged an 18% revenue increase to $1.5 billion and a 19% rise in net income to $125 million.
- Waltham, Mass.-based AI Corp. had good tidings to include in its first quarterly earnings report as a public company: a $516,000 profit, in contrast with last year's second-quarter net loss of $614,000, and revenue up 82% to $5 million.

CORRECTIONS

Summation Legal Technologies, Inc.'s Summation II litigation support software is priced at $1,595 [CW, April 30].

Software 2000, Inc.'s Environmental Management 2000 series helps customers manage their responsibilities for environmental compliance rather than helping them track and manage recyclable products [CW, July 2].

A news short [CW, July 23] incorrectly stated that Samsung Electronics Co. would pay for the development of a low-end workstation based on Sequoia Systems, Inc.'s proprietary multiprocessor architecture. The development efforts will go toward a low-end, Unix-based workstation, Sequoia said.

The minicomputer that will host the New York City Transit Authority's Gateways system has not been selected; it will not necessarily be a Digital Equipment Corp. VAX as was incorrectly stated [CW, July 23].

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NEWS SHORTS

S&L agency has IS mess

The U.S. General Accounting Office (GAO) said last week that Resolution Trust Corp. (RTC), established by Congress last year to oversee the liquidation of hundreds of failed thrifts, lacks the information systems leadership, strategic plan and systems architecture needed for the $300 billion cleanup. RTC is relying on a hodge-podge of existing systems from other financial agencies but has no comprehensive plan for moving to its own integrated systems, the GAO said. RTC's oversight board is not reviewing IS activities, and no senior IS official has yet been hired, the GAO added. The GAO said RTC is taking corrective actions.

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OS/2 2.0 tool kit ships

Microsoft Corp. is now shipping an OS/2 2.0 Software Development Kit Update for Version 2.0 of the OS/2 Presentation Manager system. The update includes the necessary prerelease components to give corporate and third-party developers the ability to write 32-bit applications for OS/2 Version 2.0.

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Baxter, Comdisco team up

Baxter International and Comdisco, Inc. will cooperate in helping hospitals finance high-technology capital equipment purchases and managing this equipment once in place. Comdisco agreed to become part of Baxter's Access program, a group of alliances that includes Spectrum (a joint venture with IBM), Kraft Foodservice Group and Waste Management, Inc. Through Access, Baxter offers value-added services to hospitals.

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Price cuts from HP, AST

Claiming both manufacturing effectiveness and market competition, Hewlett-Packard Co. reduced prices on its Vectra 286/12s and Vectra OS/16s by about $400 on most configurations. The HP Deskwriter laser printer was reduced from $1,195 to $995. Meanwhile, AST Research, Inc. slashed prices 4% to 26% on some models of its Premium line of PCs.

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ALR takes bus downstream

In the past, when users of Advanced Logic Research, Inc.'s Intel Corp. 80386SX-based machines chose to upgrade the units with 32-bit 386 or I486 boards, they wound up constrained by the box's original 16-bit I/O bus. The Irvine, Calif.-based PC maker is avoiding this potential bottleneck by designing its latest 386SX PC with the 32-bit Extended Industry Standard Architecture bus. The Business VEISA 32CSX machine is based on Intel's 20-MHz 386SX chip and is upgradable to the Intel 33-MHz I486 chip. Scheduled to ship next month, the models range from $2,799 to $4,999, depending on hard disk capacity.

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Bell Atlantic targets AS/400

Bell Atlantic Business Systems Services in Frazer, Pa., has announced a new computer maintenance program for the IBM Application System/400 midrange. The AS/400 Xtra Support program, like Bell's other midrange services, includes telephone consultation and technical advice on performance, communications, systems operation, configuration and temporary program fixes. Bell is also offering a "total system lease program" for midrange users.

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Layoff estimates pared at AT&T

AT&T's Network Services Division (NSD) — the unit that operates long-distance lines — will lay off 3,900 fewer people than was originally announced, a spokeswoman said. In May, NSD said it would lay off some 6,000 technical workers; through early retirement offers and attrition, that number is now down to 4,300, NSD officials told the Communications Workers of America on July 10. Given that there are 2,200 vacancies on which the employees can bid within NSD, the final number of people who may be laid off is clost to 2,100.

More news briefs on page 87

Sun enlists resellers in business foray

BY JAMES DALY
and JOHANNA AMBROSIO
CW STAFF

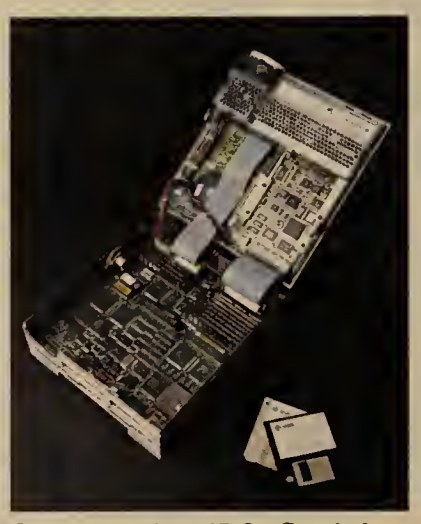
NEW YORK — Sun Microsystems, Inc. stepped up its bid for the corporate marketplace last week. The company announced its first plans for widespread domestic distribution through computer reseller chains and a new workstation to lure business users.

These moves position Sun — once known almost exclusively as a supplier for scientific and technical customers — to compete head-on for the commercial marketplace with the likes of IBM, Compaq Computer Corp. and Apple Computer, Inc. "Sun is really going after the high-end PC market; there's no doubt about that," said Martin Ressinger, an analyst at Duff & Phelps, Inc., a research firm in Chicago.

Within the commercial market, Sun is targeting networked applications as its mainstay. "Our mission is to empower the work group and provide easy work-group computing," said Scott G. McNealy, Sun president and chief executive officer.

To help accomplish that, Sun inked reseller pacts with Nynex Business Information Systems Co., Microage, Inc. and Exton, Pa.-based Intelligent Electronics. In addition, Xerox Corp. has agreed to resell Sun systems, a deal Sun officials said could be worth $200 million per year. Until now, Sun has sold its machines through its own sales force and value-added resellers.

Sun's latest entry in its Unix-based reduced instruction set computing line is the Sparcstation IPC, a $9,995 machine that includes a 207M-byte hard disk drive and a 16-in. color monitor. The cake-box-size model can



Sparcstation IPC, *Sun's lowest cost color RISC workstation*

process 15.8 million instructions per second, runs at 25 MHz, includes a DOS-compatible 3½-in. floppy drive and offers from 8M to 24M bytes of memory. A diskless version costs $8,995.

Central to Sun's commercial systems strategy is its software. Its plan is to sell enough IPCs to attract independent software vendors to port their commercial applications onto the Sparcstation family. That, in turn, will drive more sales, according to McNealy.

Out of approximately 2,100 applications packages for the Sparcstation, some 120 have been announced or are shipping for the commercial market. Around 300 more commercial packages are in development, according to Wayne Rosing, vice-president of Sun's desktop systems and graphics group.

Another important segment of Sun's commercial software strategy is the new release of its Open Windows environment, which will make "Unix computing as easy to use as the Macintosh," Rosing said. It also includes a new release of the X11/News Window System. All Sparcstation IPCs will be shipped with the new Open Windows Version 2.0, Sun said.

Both Sun and the retail channel will concentrate on selling networked computers. "We're not going to compete against stand-alone PCs, because there are companies that do that much, much better than we do," said Eric Schmidt, vice-president of marketing.

Large companies that have already installed the IPC include Merrill Lynch & Co. in New York, Nynex Network Services in White Plains, N.Y., Healthcare Affiliated Services, Inc. in Pittsburgh and the *Houston Chronicle.* Those sales were made through Sun's direct sales force.

Dbase

FROM PAGE 1

management was so bad.

Ashton-Tate has a lot of ground to make up to recapture its former hold on the hearts and minds of users. "We didn't have that many problems with Dbase IV 1.0, but [at this point] we feel they've missed the boat. We've gone over to Foxbase," said Rocco Esposito, a personal computer coordinator at Maidenform, Inc. in Bayonne, N.J.

"We're skeptical," said Brian Williamson, PC services manager at the First Security National Bank & Trust Co. in Lexington, Ky. "What was so wrong with the product that it took them so long to fix it? How confident can I be now that it's OK?"

Yet the issue is not whether there will be problems — no program is bug-free. The key is how Ashton-Tate deals with problems. "To maintain the customer base, they have to prove they can get a stable product out," said Barbara Isgur, an analyst at Needham & Co.

"The issue is trust," said Michael Irwin, a successful Dbase IV user and a police officer/systems analyst at the Metropolitan Police Department in Washington, D.C. He claimed Release 1.1 has been stable for months but was held back because Ashton-Tate did not know when to close the door on new enhancements. Irwins said he has done some major programming with Dbase IV and will upgrade to Release 1.1.

Analysts estimated that as many as 500,000 users will migrate within the first few months to a stable Release 1.1. Without it, long-time loyal users will become "discredited laughingstocks," and a core of key corporate programmers will be forced to switch to clones, taking an average of five to 25 users with them each time, Green said.

Release 1.1 is a follow-up to a very buggy Dbase IV 1.0. First shipped in October 1988, Release 1.0 thudded to the ground and never got up, the victim of scathing reviews.

Tomorrow — almost two years of feverish development and four quarters of red ink later — it's "Truth or Consequences" time for Ashton-Tate's newly installed management team of President William Lyons and Dbase general manager David R. Procter.

The company will also release Dbase IV for Digital Equipment Corp.'s VAX/VMS.

Although beta-test users of Dbase IV Release 1.1, including Green, have been giving it a thumbs-up, developers will walk away empty-handed.

Developers, who were at the forefront in denouncing predecessor Dbase IV 1.0, face a long wait for 1.1's Professional Compiler, which has not even entered beta testing. Green predicted it will be eight months to a year before it is ready.

While developers stew, the big question for most observers is how much of the installed base will migrate upwards and how much it will cost the company in free upgrades to Dbase IV 1.0 users. Release 1.1 ordinarily will be priced at $175 per copy.

A few more than 350,000 copies of Dbase IV were sold, with a couple thousand more given away as evaluation copies. Ashton-Tate reportedly has reserved $5 million to cover the cost of upgrades to 1.1. Only registered users are eligible.

Ashton-Tate said its total installed base is about 3 million. If Release 1.1 lives up to the accolades of such users as Rock Blanco, an IS vice-president at Boston-based Garber Travel, it could trigger a large user migration, which in turn could prove costly for Ashton-Tate, which is coming off a $12.5 million loss.

Pepsico units rally around uplink

BY ELISABETH HORWITT
CW STAFF

LEBANON, N.H. — In an unprecedented move toward interdivisional solidarity last week, Pepsico, Inc. announced that its three giant restaurant chains and food supply subsidiary cooperatively chose a tiny New Hampshire vendor's point-of-sale (POS) polling system.

Under a $1 million, three-year exclusive contract signed last month, Corporate Microsystems, Inc. will supply Taco Bell Corp., Kentucky Fried Chicken Corp., Pizza Hut, Inc. and Pepsico Food Systems with software to coordinate communications among their IBM hosts and domestic, company-owned fast-food outlets, according to the firm's president, Richard Green.

The purchase of Mlink represents the first major cooperative buying decision that the restaurant chains have made and will form "a piece of a large strategic direction" that all three chains are following in parallel, said George La May, telecommunications manager at Taco Bell.

Initiated in the early 1980s, the strategy involves implementing personal computer-based POS and restaurant management systems and improving communications with those outlets in order "to lessen the restaurant manager's administrative burden, which in turn improves service," La May said.

Mlink will poll microcomputers at the Pepsico-owned outlets, upload sales and other day-to-day operations data to an IBM mainframe and download time-sensitive information such as menu and pricing changes to the various sites.

Pizza Hut chose the package in the spring of last year and brought it to the attention of the other subsidiaries. All three were close to choosing either GTE Retail Systems or Xcellenet, Inc. as their POS management supplier. However, they eventually agreed to be part of the Mlink contract.

Service sells

Both Taco Bell and Kentucky Fried Chicken indicated that a desire to reach a consensus with their sister companies was a minor factor in their choice of Mlink. A much more important consideration, both said, was Corporate Microsystems' technicians' technical ability and willingness to go the extra mile.

Butch Dulaney, director of restaurant systems development at Kentucky Fried Chicken, said he was particularly impressed when the vendor successfully ported Mlink to Microsoft Corp. OS/2, at his request, in a matter of weeks.

Corporate Microsystems also impressed Taco Bell by migrating 120 of the chain's outlets from GTE's Winning Connection to Mlink in 72 hours, La May said.

Among Mlink's functional advantages were a superior security system and the fact that it seemed "more oriented toward polling files in batch mode rather than in interactive mode, which requires someone at the screen," Dulaney said.

Mlink's recently announced support of IBM's LU6.2 protocol also provided more flexible two-way communication with the IBM host, Dulaney said.

Pepsico has a policy of not influencing its subsidiaries in their information systems buying decisions. However, peer, if not corporate, pressure apparently played its part in Pepsico Food Systems' decision to buy the software, according to Douglas Cothern, the subsidiary's director of applications systems.

Pepsico Food Systems had originally decided to go with Xcellenet after evaluating all three packages, Cothern said. The package's interactive orientation was a boon to the food supplier, which is used to taking orders from Pepsico's franchise outlets on an as-needed basis. In contrast, the restaurant chains tend to collect data and download updates in batch form to their outlets, Cothern said.

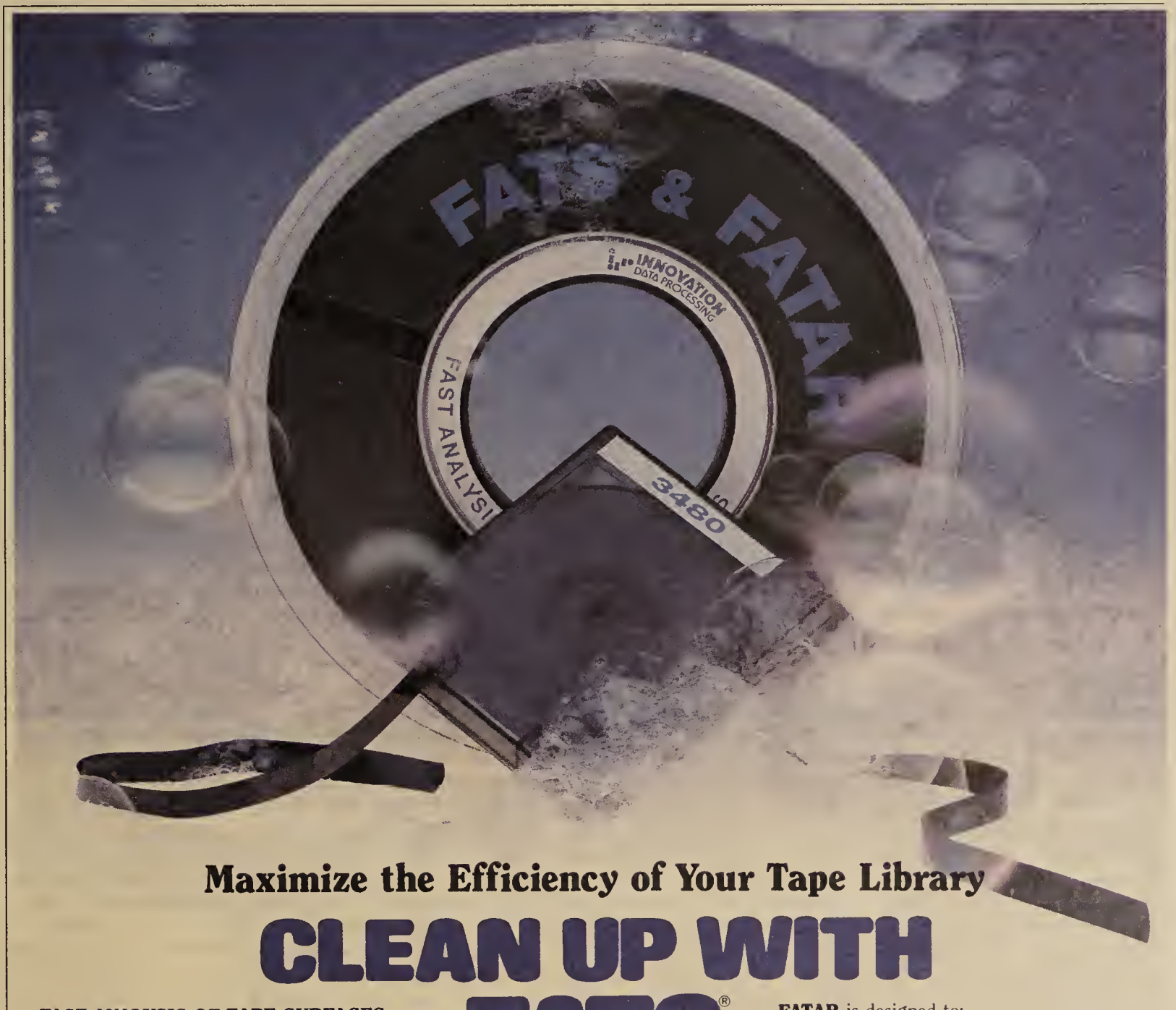
Pepsico Food Systems also liked the windows-based, mouse-driven user interface that Xcellenet provides through its support of IBM's Presentation Manager, Cothern said.

Nevertheless, the subsidiary agreed to go with Mlink in order to "be a good corporate citizen and to allow ourselves the flexibility to communicate with other company locations in the future and because the pricing was very attractive," Cothern said. "It was entirely voluntary on our part."

Pepsico Food Systems is getting essentially the same capabilities on Mlink as it would have gotten on Xcellenet, although "Xcellenet makes it easier," he added.

Taco Bell and Pizza Hut have cooperated in technological implementations prior to this, La May said. For example, Taco Bell "took pieces from Pizza Hut's labor management system and learned from their mistakes," he added. However, this is the first time that all three restaurant chains have "worked together as a team" to choose a technology, La May said.

Nor will it be the last: The three chains are now working together to implement very small-aperture terminal-based links to provide adequate bandwidth for distributing new software and updates to company-owned outlets, La May said. The links will also support video and Muzak.



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Hacker trial begins in Chicago

BY MICHAEL ALEXANDER
CW STAFF

CHICAGO — The trial of Craig Neidorf, a 20-year-old editor of a hacker newsletter, opened last week with charges from prosecuters that he plotted with a hacker to steal an "extensive road map with all of the stops along the way" to an enhanced 911 (E911) emergency telephone system and that he distributed the information to the hacker community.

Neidorf's defense attorney countered that his client was merely a journalist using an electronic bulletin board to disseminate a "meaningless . . . bureaucratic" document.

William Cook, assistant U.S. attorney, told the jury in his opening remarks, "This road map to the E911 system was stolen by Robert Riggs, a member of an organization known as Legion of Doom, and transferred to Craig Neidorf." Neidorf, Cook charged, "distributed this extensive road map to the hacker community."

The text file that detailed the inner workings of an E911 telephone system was stolen from Bellsouth Telephone Co. in Atlanta sometime around September 1988 and published in "Phrack," the newsletter edited by Neidorf, in February 1989.

Ralf-Finn Hestoft

Neidorf has been *accused of stealing 911 system information*

"Mr. Neidorf never broke into any computer system, never stole any file and never profited from this," countered Neidorf's attorney, Sheldon Zenner. "Craig has never been accepted as one of the group. He is not a hacker — he's a journalist."

Zenner downplayed the value of the E911 text file, calling it "meaningless" and a "bureaucratic document of administrative procedures." Bellsouth security personnel knew that the file had been posted on a bulletin board in Rockport, Ill., where it stayed for a year, before they contacted the U.S. Secret Service, Zenner told the jury.

David Bauer, a prosecution witness and a computer security expert at Bellcore who was asked by Bellsouth to assist in the investigation of the stolen file, conceded on cross-examination that investigators delayed looking into the theft of the file. Bauer admitted that the inaction was "irresponsible."

Robert Kibler, a security manager at Bellsouth, told the court how Riggs and at least three others repeatedly penetrated a data network linking 23,000 computers and telephone switches and rerouted telephone calls, planted Trojan Horse programs and disrupted telephone service. Although there are parts of the 911 service that are "vulnerable to intrusion," the hackers did not interrupt the service, he added.

Neidorf and Riggs were indicted last February. A superceding indictment in June charged Neidorf with 11 violations of wire fraud and stolen property statutes. If convicted, Neidorf faces a possible maximum prison sentence of 31 years and a fine of $122,000.

Last month, Riggs pleaded guilty to charges stemming from the 911 plot in Chicago and Atlanta, where he was indicted with Adam E. Grant, 22, and Franklin E. Darden, 24. Grant and Darden have also pleaded guilty to the Atlanta charges. The three are slated to testify for the prosecution in the Neidorf trial.

A test for the law

The trial of Craig Neidorf, which began last week, raises new legal issues that highlight the difficulty of applying existing laws to crimes involving the use of new technology.

This is the first time that a federal district court has been asked to decide whether the electronic transfer of confidential, proprietary business information from one computer to another across state lines constitutes a violation of the federal stolen property act.

Neidorf sought to have the charges against him dismissed on the basis that he merely transferred "electronic impulses" and not "goods, wares or merchandise" across state lines as detailed in the federal stolen property act. He also argued that the transferred item — the E911 text file — never took tangible form.

U.S. District Judge Nicholas Bua denied those motions, citing cases in which the courts have upheld convictions involving the electronic transfer of stolen funds. The judge added that if the information can be stored and is readable, then it falls within the definition of "goods, wares or merchandise" under the stolen property act.

Neidorf also filed a motion arguing that criminalizing his publication of the E911 text file in "Phrack" violates his First Admendment right of free speech.

However, Judge Bua noted that Neidorf has been charged with scheming to steal and disseminate the file and that this sort of activity is not protected by the First Amendment.

MICHAEL ALEXANDER

ISDN

FROM PAGE 1

where the only twisted pair is barbed wire," quipped Tom Terry, director of network planning and design at Norwest Technical Services, Inc. Norwest is running a 14-multiplexer T1 backbone throughout 11 states.

June Hoffman, telecommunications supervisor at Kaiser Permanente, Inc., a Denver-based health-maintenance organization, said she would like to evaluate ISDN for use in a 24-hour urgent-care application that would allow radiologists to read films from home and make quicker diagnoses.

"Unfortunately, not all our central offices can support that," she said. "We'll probably have to wait another two to three years."

Michael Prince, MIS director at Burlington Coat Factory Warehouse Corp., said he considered ISDN about six months ago, but because of limited availability of ISDN lines in New Hampshire, he opted for MCI Communications Corp.'s Vnet virtual private network offering.

"We'll revisit ISDN in about two years," he said. "I'd like the on-demand setup and switched flexibility ISDN offers."

Vendors with broader product lines are willing to ride out the initial ISDN ramp-up phase. Codex Corp., a maker of T1 multiplexers, modems and other networking equipment, recently announced its 8860 ISDN terminal adapter, acknowledging that "over the next 12 months, sales will be very small," said Ray Wright, director of ISDN marketing. "But we feel we can improve our total product approach by offering our user base a migration path to ISDN."

Less resilient was Vadis, Inc., a 2-year-old Richardson, Texas, ISDN-only company focusing on products for the Basic Rate, end-user market. Vadis decided last month that it could not wait any longer for its ISDN personal computer adapter card to turn lucrative.

The company slashed two-thirds of its work force and refocused its strategy on developing ISDN applications software and porting ISDN-like functionality to digital private-branch exchanges, according to Matt Blanton, Vadis' president.

Vadis left the ISDN hardware business because the market "only reached 10% to 15% of our expectations," Blanton said.

Users cited ISDN service pricing as one roadblock to those expectations.

U.S. Bancorp, a regional financial services organization headquartered in Portland, Ore., evaluated Primary Rate pricing last year against the economies of its existing T1 network and found ISDN to be cost-prohibitive, according to Earl Vogt, telecommunications manager.

"There's also a lack of innovative ISDN applications with associated customer premises equipment to justify swapping out my T1 gear," he added.

Joseph Tsalik, a project manager at Shearson Lehman Hutton, Inc. in New York, noted that while the technology "seems adaptable to Shearson's requirements," he is unable to determine if ISDN is cost-effective because there is no ISDN tariff yet in his area. He added that the tariff would need to fall in the $30-to-$40-per-line range for ISDN to make economic sense for his firm.

Ascend Communications, Inc., a recent entrant to the ISDN CPE arena, is risking an end-user focus and is backed by one of the same venture capital firms that invested in Vadis: San Francisco-based Kleiner Perkins Caufield & Byers. Ascend is targeting the data side of ISDN only and has a leg in both the Basic Rate and Primary Rate ISDN camps — a possible advantage over Basic Rate-focused Vadis, since Primary Rate lines are more widely deployed and offer greater bandwidth (1.5M bit/sec.). Ascend is offering products that allow hosts and local-area networks to access Primary Rate ISDNs.

Timing-wise, newcomer Ascend has another advantage in that it is getting into the market at the point where Vadis has already waited two years for the regional Bell operating companies to widely deploy ISDN Centrex, which was the foothold for its product strategy.

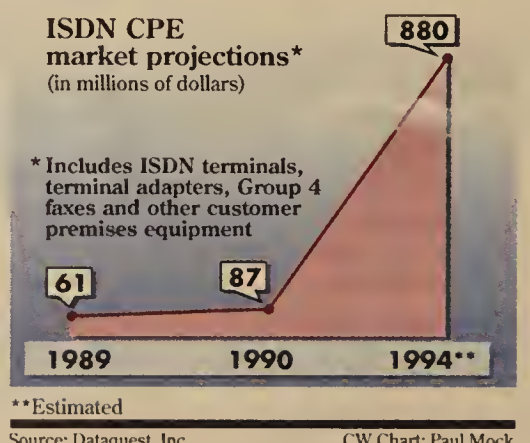
However, Larry Cynar, a senior telecommunications analyst at Dataquest, Inc. in San Jose, Calif., noted that "the danger in being totally on the data side of ISDN is competition by private networks. There are many powerful networks out there handling data, and it may not make economic sense for users to move over to ISDN now that they have that T1 monster sitting over there to pay off."

Jerry King, manager of telecommunications technology at General Electric Co. in Bridgeport, Conn., believes ISDN will catch on, but not quickly. "I doubt ISDN is going to proliferate fast enough for the existing CPE companies to hang in there," he said. GE is running one pilot Basic Rate ISDN installation.

"ISDN will evolve to a wide-area solution in a couple of years, but in the meantime, it will be smaller companies with local and regional applications that will be able to use it," King predicted.

At their mercy

Because they must wait for telephone companies to deploy a critical mass of ISDN lines, there won't be room for multiple ISDN equipment vendors until mid-decade



Source: Dataquest, Inc. CW Chart: Paul Mock

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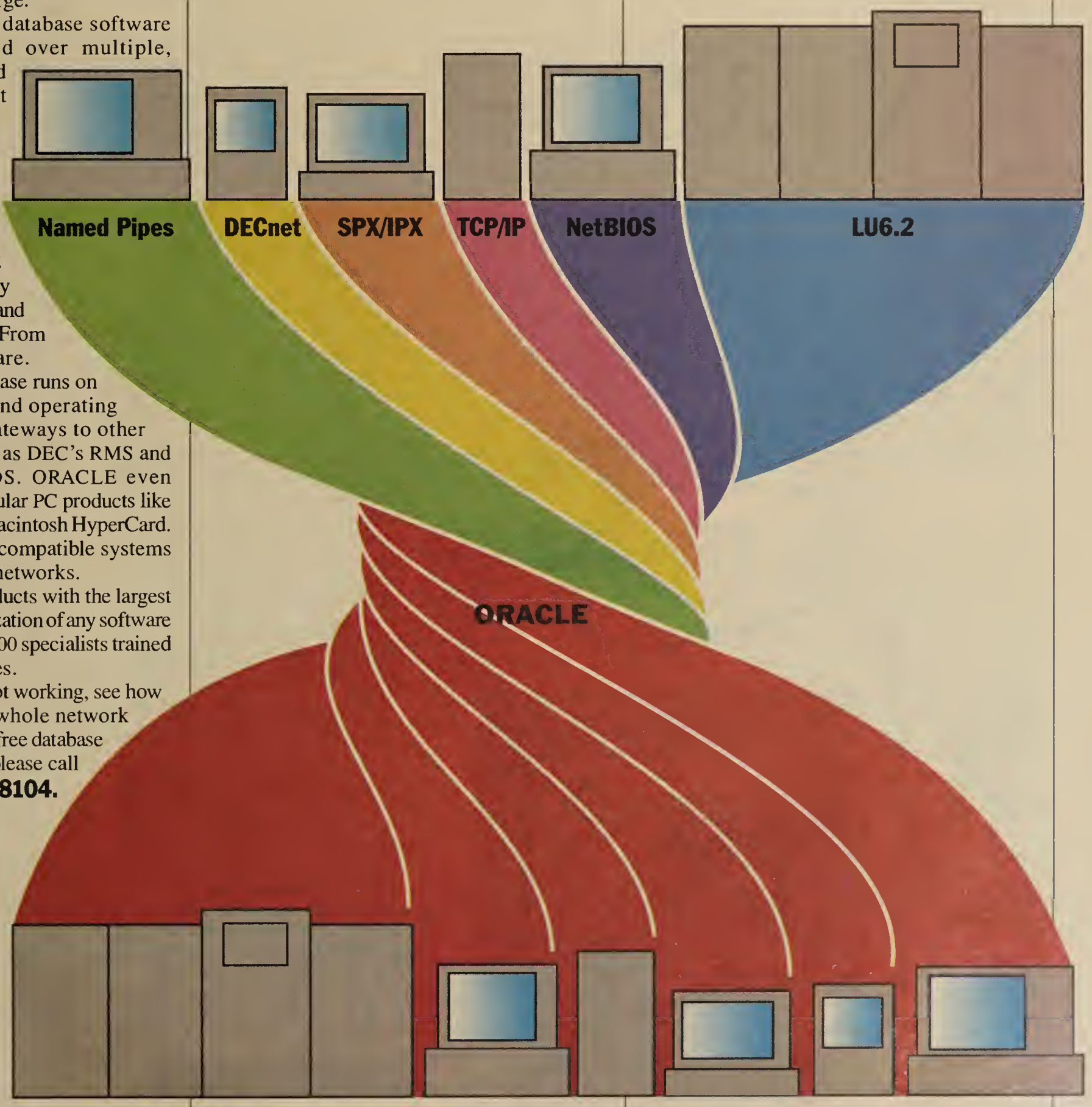

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Manufacturers planning for low-emission VDTs

BY J. A. SAVAGE
CW STAFF

VDT manufacturers are publicly leaving the issue of health standards to the American Electronics Association and the Computer and Business Equipment Manufacturers Association. Privately, however, some are planning to take advantage of concerns about potential health effects by introducing low electromagnetic field-emission monitors.

In a meeting last week in San Jose, Calif., representatives from seven U.S. manufacturers agreed to support the two official organizations' research and information exchange on VDT health effects. They also agreed to look to those organizations to set test and measurement standards for low-emission VDTs, if needed.

"We didn't see any need to form another group," said Marianne Lettieri, Apple Computer, Inc.'s meeting representative.

Separately, Apple testified last week before the House Committee on Science, Space and Technology, encouraging Congress to support "comprehensive research of the potential human health effects of emissions, especially those found in and around VDTs."

Unless government or industry groups act quickly to set standards, there will be low-emission VDTs on the market with no agreement on what constitutes "low-emission." Some of the manufacturers at last week's meeting said they plan to introduce low-emission monitors to capitalize on consumer concern.

Apple, for instance, is "looking into ways to lower emission rates, not because there's any scientific basis [for health problems], but because we want to be responsive to consumers," Lettieri said.

Sun Microsystems, Inc. is "not sitting on it" either, said Gulab Sharma, manager of Sun's CRT display group.

One firm, Sigma Designs, Inc., already has a low-emission monitor for one type of electromagnetic radiation based on Swedish standards and plans to announce a monitor for both types of emissions early next year. For monitors to be sold to the Swedish government, they must meet low-emission standards, said Thinh Tran, president of Sigma.

VDT manufacturers are in the thorny position of wanting to capitalize on an emerging market for health-conscious consumers while insisting there are no health problems associated with current monitors. Acknowledging the latter could raise concerns over potential liability.

There have been no conclusive studies on health effects from VDT emissions, but an early version of an Environmental Protection Agency report recommended that extremely low frequency electromagnetic fields be classified as a "probable" cause of human cancer. That recommendation was rescinded pending further review, according to Louis Slesin, editor of "Microwave News."

The second type of emissions — very low frequency — has been under suspicion for several years and has been the focus of other, still inconclusive, studies.

Sigma's brand of safety

Filtering out electromagnetic radiation from VDTs has been attempted in the past through metal shielding around the display, but that has largely been ineffective.

Sigma Designs, Inc., a Fremont, Calif.-based manufacturer, is filtering one type of emission by creating an opposite electromagnetic field to cancel out the existing fields.

When a VDT is powered up, fields are created by electricity running through coils at the yolk of the machine, according to Charles Waters, Sigma's senior marketing manager. To cancel out very low frequency (VLF) radiation, Sigma adds a second set of coils. The trick, he said, is positioning the two fields to cancel each other in space.

Sigma announced it would have monitors that also are low in extra-low frequency (ELF) emissions by early next year. Those monitors would have yet another set of coils for canceling the second type of electromagnetic field.

ELF in the range of 1Hz to 30Hz is the principal frequency range of the earth's magnetic field. Man-made ELF is slightly higher, about 60Hz. VLF is 15,000Hz.

IBM has a similar approach to reducing VLF emissions in a patent issued in the UK in 1987. The company would not say, however, what technology is employed in its low-emission Infowindows display sold in the U.S. and Canada.

Low-emission monitors are not cheap. Sigma adds about $400 to the cost of its displays for low-VLF versions and would not venture as to how much more expensive a low-ELF/VLF version would be. IBM's displays run between $995 and $1,620.

J.A. SAVAGE

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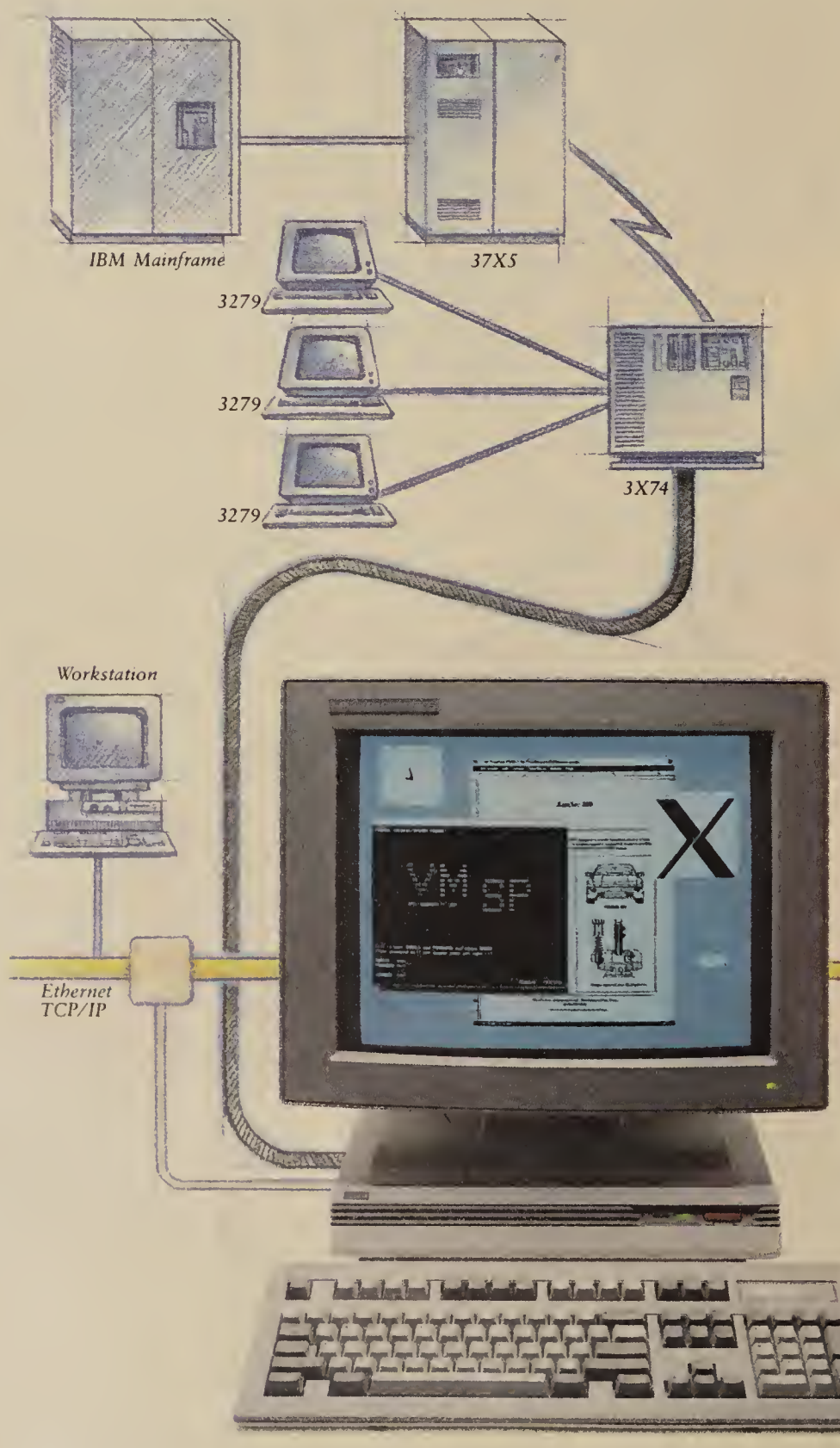

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Wyse multiprocessor challenges rivals

BY MARYFRAN JOHNSON
CW STAFF

SAN JOSE, Calif. — Wyse Technology extended the high end of its Unix-based multiuser systems line today with the introduction of the Series 9000I Model 940, intended as a database engine and server for distributed processing.

Based on the Intel Corp. I486 chip, the new system can support up to eight 486 processors and scale up to performances of 100 million instructions per second.

Wyse also announced a new release of its own version of AT&T Unix System V Release 3.2, as well as a number of enhancements for earlier models, including a 486-based CPU upgrade board for the Model 920, a small computer systems interface hard disk and tape drive support for the entry-level Series 5000I.

All of the products are available immediately. The 9000I Model 940 ranges in price from $38,000 to $215,000, depending on configuration, and can support 48 to 64 users with one CPU.

The underlying architecture of the 9000I series is symmetrical and linearly scalable, so users adding CPUs gain a 100% performance increase, or double power, with each CPU, said Mary Ann Winchester, senior marketing manager at Wyse's advanced systems group. "That's important when managing large amounts of information on a server," she noted.

Richard Shaffer, editor of the "Technologic Computer Letter," said Wyse has been popular among value-added resellers of small multiuser systems because of its upgradability, multiprocessor operating system and historic strength as a supplier of terminals and personal computers among minicomputer VARs and distributors.

Aim Technology, a Unix benchmarking firm located in Santa Clara, Calif., gave the Wyse 9000I Model 940 a performance rating of 6,030% and a user load rating of 902, which Wyse officials said is an indication that it significantly outperforms other Unix-based multiprocessing systems from competitors such as Sequent Computer Systems, Inc., Pyramid Technology Corp. and NCR Corp.

Wang paves Unix migration path

BY SALLY CUSACK
CW STAFF

LOWELL, Mass. — Hoping to salvage the business of some of its earliest customers as well as snap up some new users in the bargain, Wang Laboratories, Inc. formalized an agreement last week that will help users of the Wang 2200 migrate to Unix.

Under terms of the marketing agreement, Wang will distribute Niakwa Management Services of America, Inc.'s Basic-2C Development and Runtime software packages.

The Mundelein, Ill.-based developer's software will provide a migration path to AT&T Unix System V and The Santa Cruz Operation's Xenix for Wang 2200 and CS/386 system users and value-added resellers (VAR).

"Not a lot of Wang 2200 users migrated to the VS platform back in the '70s and early '80s," observed Tim VeArd, president of VCR, Inc., an independent consulting firm in Austin, Texas.

Wang estimated that more than 70,000 of its Model 2200 computers have been installed worldwide since their initial debut in 1972. An upgraded version of the system, the 32-bit CS/386, was unveiled in 1986.

Investment insurance

The Wang/Niakwa agreement will allow Wang users and VARs to protect their existing Basic-2 software investments while providing an optional migration path from proprietary Wang systems to industry-standard platforms.

Basic-2C is an enhanced implementation of the Basic-2 language used on Wang's 2200 and CS/386 systems. It reportedly has 40,000 end-user sites to date.

The software can also be ported to Wang's Dynamix line of multiuser Unix servers, as well as industry-standard personal computers and PC local-area networks running under Xenix or SCO Unix System V/386, Release 3.2.

"I think this will definitely increase Wang's sales," said VeArd, adding that there are Basic-2C users scattered across a diverse range of vertical markets — from construction management to graveyard tracking. "Wang will be able to walk into the Unix arena with thousands of existing software products."

The Basic-2C program is divided into two modules: a development package and a runtime package. Slated for availability next month for Wang's Dynamix line, the development package license fees will range from $695 to $995. The Runtime package is also scheduled for delivery next month, with fees ranging from $395 for a single-user system to $9,160 for systems supporting more than 64 users.

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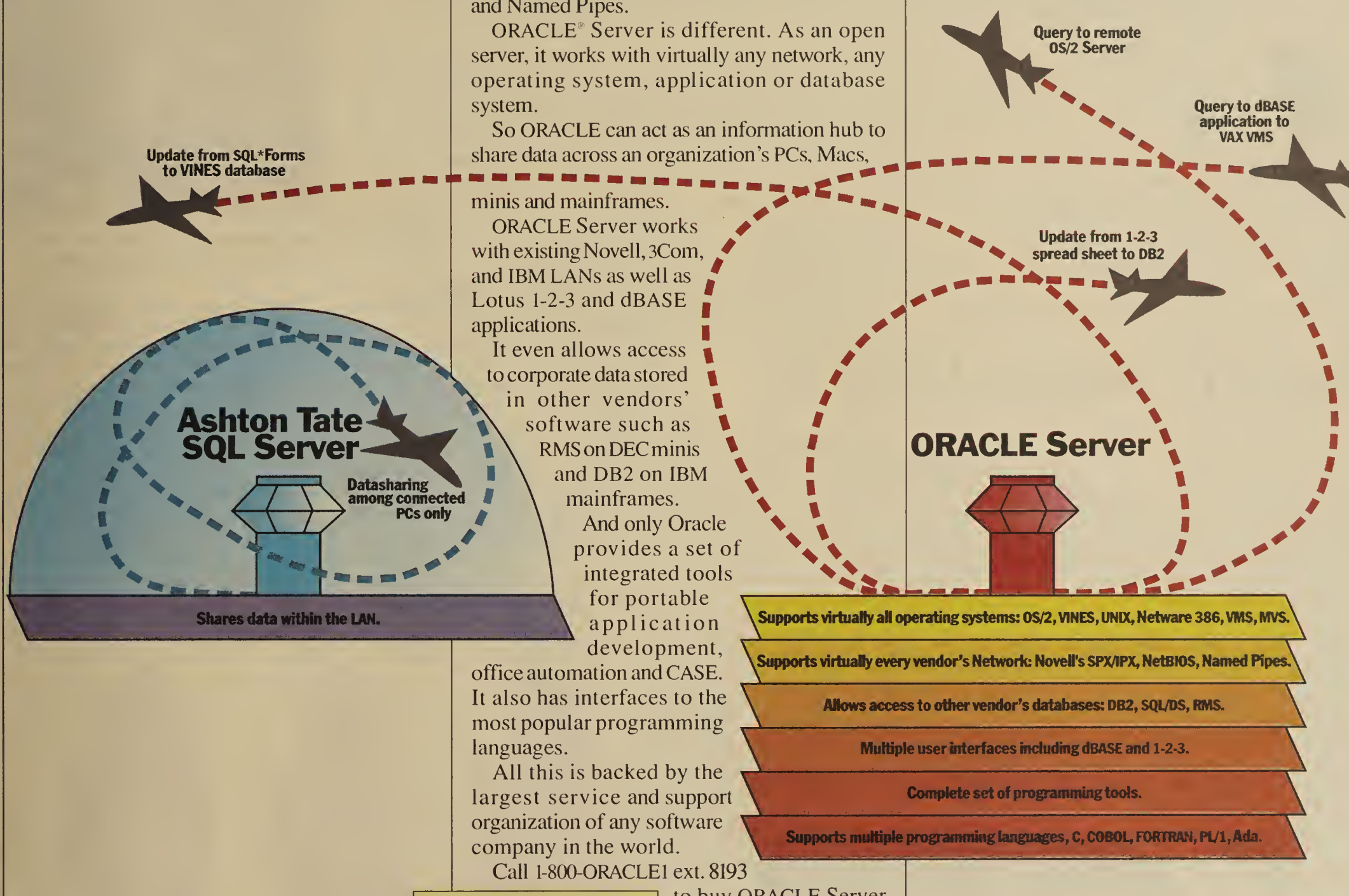

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Thailand's database aimed at social needs

Last in a series of reports profiling winners of this year's Computerworld Smithsonian Awards.

BY CAROL HILDEBRAND
CW STAFF

A look through your wallet can reveal just how deeply embedded in informational databases you are.

How many identification cards can you come up with? License. Social-security card. Credit cards. Each represents a different computer database where personal information about you has been stored. Think of the possibilities — both good and bad — if all those sources of information were compiled into one database for an entire nation's population.

Thailand's Ministry of the Interior has created such a system. Its Central Population Database (CPD) closely tracks the 55 million Thais living in 10 million households nationwide. The database, which is the only fully integrated demographics database system in the world, can be used to improve the country's standard of living, and it has netted the ministry a *Computerworld Smithsonian Award.*

"We can plan various parts of Thai society in hundreds of categories," said Surachai Srisaracam, director of the CPD Center in Bangkok. For example, public health planning can be improved by providing accurate and timely statistics on births and deaths, he said.

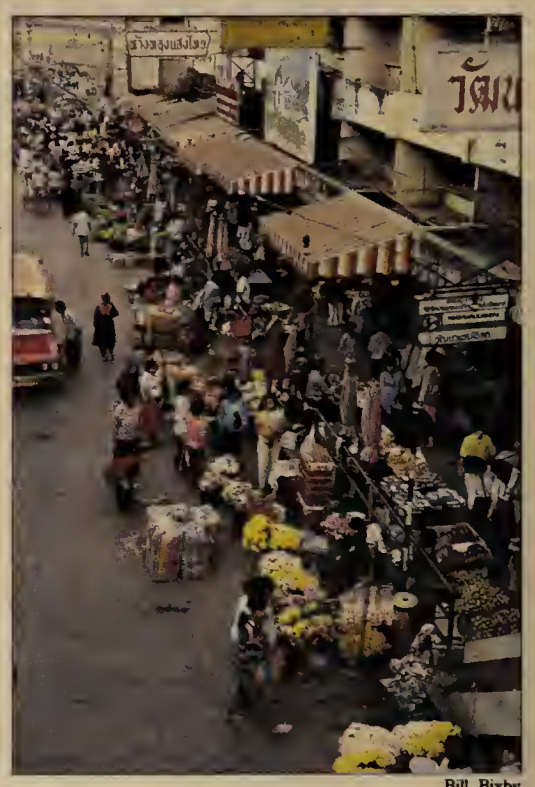
The database is designed to generate accurate information on a nationwide basis. The detailed demographic information can aid greatly in such areas as urban educational planning, health care and benefits administration, as well as tax collection and law enforcement. "The payback will be in terms of the improved efficiency or the work performance of government agencies," Srisaracam said.

Before the CPD was initiated five years ago, educational and development planning was done on a regional basis. Statistical reports, produced manually at the ministry, were often outdated before their completion. "Now we have an automated information system that covers every area," Srisaracam said.

A vital part of the system is the personal identification number (PIN) project, which has set up a computerized system for processing personal ID cards for each Thai citizen. These cards, which contain both a thumbprint and a head-and-shoulders photo, are being produced at a rate of 6 million annually. The system has been operating since January 1988 and has produced about 12 million cards thus far. They will eventually become the official Thai ID document.

Thailand, which is bordered by such politically unstable countries as Burma, Cambodia and Laos, also uses data from the PIN project to combat illegal entry into the country. Applications being developed include passport, immigration and refugee control systems.

Such close governmental tracking of its citizens can conjure up shades of Big Brother, but this is not the case, Srisaracam said. "It's a system that people need. They accept it." CPD also complies with government privacy laws, he said.



Bill Bixby

Thai citizens *are subjects and beneficiaries of the world's largest database*

The database is housed on three Control Data Corp. Cyber 960 mainframes and two Cyber 830 multiprocessors with 100G bytes of disk capacity. Four hundred IBM-compatible workstations running DOS are linked to the Cybers. The center now receives updated information on paper monthly from its 1,000 provincial offices. The local offices are expected to be linked on-line to the main data center within six years, and they will be able to send a daily update of the data.

Tandy PC takes on IBM PS/1

BY RICHARD PASTORE
CW STAFF

FORT WORTH, Texas — Attempting to counter IBM's latest incursion into its traditional home computer turf, Tandy Corp. last week unveiled a personal computer that undercuts the new Personal System/1's base price by $250.

The Tandy 100/RL hopes to be all things to home users by bundling 24 home productivity applications in addition to DOS. These include personal and financial management utilities that allow users to balance a checkbook, manage investment portfolios and compute changes to recipes based on the number of servings needed.

While IBM chose the late-model Intel Corp. 80286 chip for its PS/1, the Tandy box runs off the even more outdated Intel 8086 chip. Memory starts at 512K bytes and is expandable to a maximum of 768K bytes. The unit supports IBM Color Graphics Adaptor graphics and includes one expansion slot, joystick and mouse ports and parallel and serial interfaces.

Tandy does not require its customers to purchase an expansion chassis to add memory or drives, as is the case with the PS/1 [CW, July 2]. Tandy claimed that total accessory charges for its box will cost the user $350 less than that of IBM's accessories.

The $750 base model includes a 720K-byte, 3½-in. floppy disk drive and a monochrome monitor. A color monitor and 20M-byte hard disk bring the price up to $1,300.

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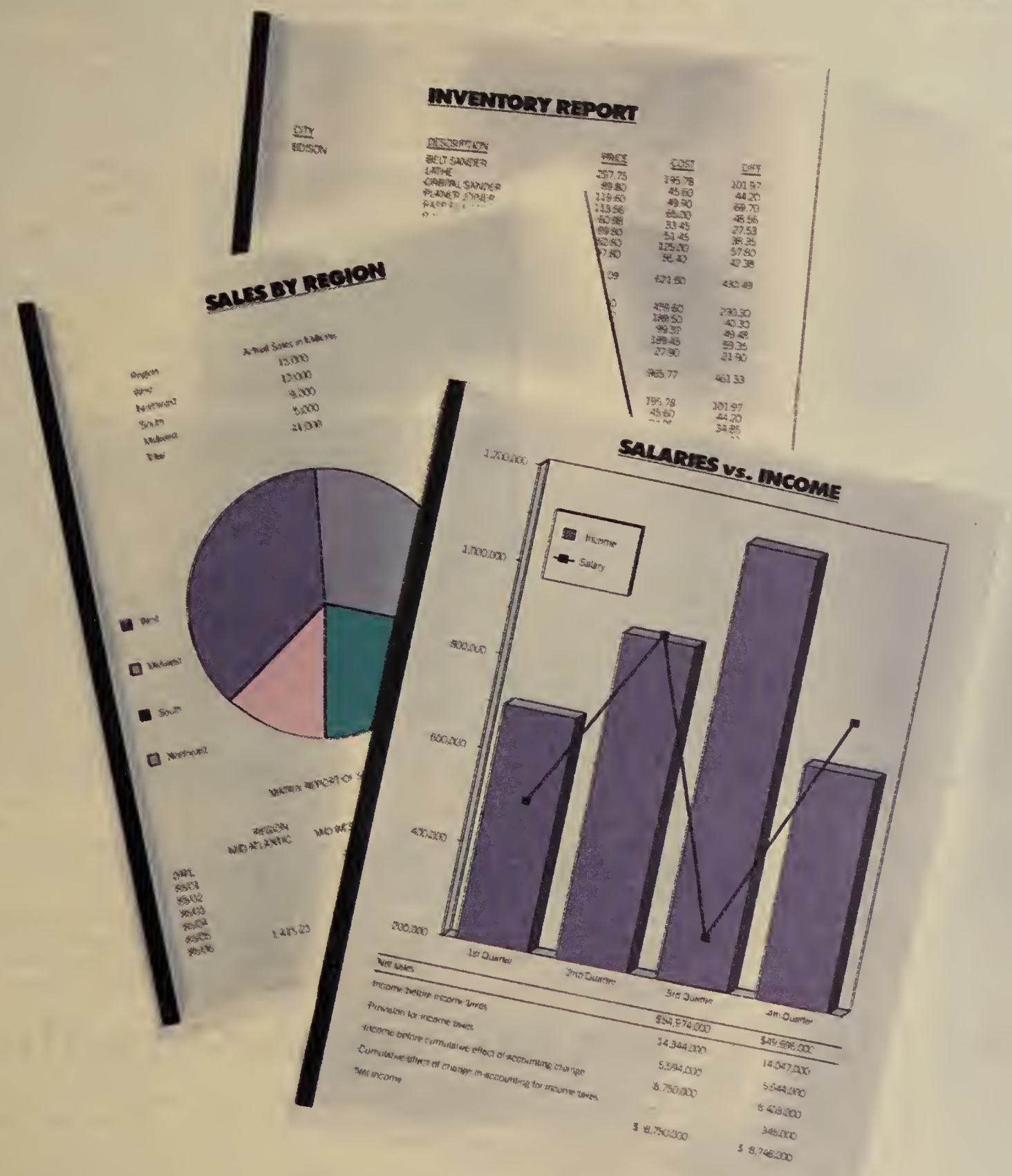

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ADVANCED TECHNOLOGY

TECH TALK

Squeeze on color

■ Eastman Kodak Co.'s electronic photography division has developed image compression software that it said reduces the cost of storing and transmitting large Apple Computer, Inc. Macintosh color images by as much as 93%. "Kodak Colorsqueeze image compression software can be used to reduce 24-bit PICT and TIFF files by factors of approximately 5-to-1, 8-to-1 and 14-to-1," said Robert Bensman, marketing manager at the division. Once restored to its original size, the file can be saved in either PICT or TIFF or copied to the Scrapbook of Clipboard on the Macintosh. The software is available now at a suggested retail price of $179.

Hardy new diamond

■ Researchers at General Electric Co. recently announced that they have created a synthetic diamond that conducts heat and laser more effectively than natural diamonds. The new diamond could be used in future generations of microchips and lasers, the company said. It could also be used to create microchips that feature closely packed components that would be more impervious to potentially destructive effects of heat.

A logical language

■ Bellcore has developed what it said is a highly efficient, object-oriented computer language called Laure that uses logical deduction to solve complex programming problems. "Laure programmers need only describe the software-writing result they are seeking, and Laure will determine the best way to reach that goal," said Bellcore researcher Diane Hoffoss. The new programming language can automate up to 50% of a programmer's work, according to Yves Caseau, the software's inventor. Laure organizes facts and related instructional data into sets and then defines specific relationships among all the sets in a program.

Rut-roh! High-tech helps The Jetsons

Universal Studios uses computer-generated animation to bring back an old favorite

BY MICHAEL ALEXANDER
CW STAFF

George Jetson, the central character in the once-popular, animated television show, *The Jetsons*, spent much of his time on-screen tussling with futuristic technology that had run amok.

Now George is back on-screen in the recently released Universal Studios' and Hanna-Barbera Productions' film, *Jetsons: The Movie*, and he has modern technology in part to thank for his comeback.

The film's opening titles, as well as several minutes of backgrounds, were created by deGraf/Wahrman, a West Hollywood, Calif., software design and film production firm. The company used Symbolics, Inc. workstations running Symbolics' two- and three-dimensional paint and animation software.

Symbolics, based in Burlington, Mass., designs high-end graphics production systems and software for broadcast, video production, film, engineering and corporate markets.

Universal Studios and Hanna-Barbera wanted a "cartoon look" for the Jetsons movie, but they also wanted backgrounds that had accurate, 3-D perspectives. Traditionally, the backgrounds in animated films are flat; to suggest movement, the filmmaker may pan the camera from side to side, explained Michael Wahrman, president of deGraf/Wahrman. To create a sense of movement into or out of a background, the filmmaker must build a 3-D model.

The drawback is that the model lacks the cartoonish look of the rest of an animated film. Computer-generated animation overcomes that limitation and offers additional advantages, such as permitting the filmmaker to use the same background repeatedly.

DeGraf/Wahrman, which had previously made an animated film for an amusement ride at the Universal Studios Theme Park in Orlando, Fla., created eight minutes of background animation for the movie, including a 46-second establishing shot that carries the viewer in a jet car through Orbit City, the Jetson family's hometown.

Photos: ©1990, Universal City Studios. Jetsons property ©1990, Hanna-Barbera Productions, Inc.

deGraf/Wahrman *used graphics workstations from Symbolics to create animated footage that retained the feel of cartoons*

More firms are turning to high-end workstations to put the finishing touches on film and productions, according to Joseph Plonski, director of applications marketing at Symbolics.

Last December, for example, Apple Computer, Inc. used Symbolics' Macivory animation and paint system for Macintosh II systems to create in only two months a 90-second computer-animated video to introduce the Macintosh IIFX, Plonski said.

Advances in high-resolution video technology, such as high-definition television (HDTV), are also driving the demand for razor-sharp computer-generated graphics in medicine, scientific research and other areas, he said.

Media Productions in Pompano Beach, Fla., uses a Symbolics workstation to convert motion picture film to HDTV, which is then broadcast over fiber-optic cables to high-definition electronic cinemas, said James Haney, the company's president. Club Theater Network, the production firm's parent company, aims to install the electronic cinemas in exclusive clubs, resorts and high-rise apartment complexes, Haney said.

"Many retirees, especially here in Florida, live in secure communities and do not normally go to the movies," said Bob Kemmerer, vice-president of marketing at Media Productions. "This way they can see movies in their own living or vacationing environment."

The cinemas will show first-run and classic movies plus live entertainment and sporting events shot in HDTV.

Cutting costs with computer-based training

BY MICHAEL ALEXANDER
CW STAFF

When Carousel Mediaworks found itself in competition for a corporate contract with five video production firms, the small developer of training programs had a pretty good idea it could get the business. The reason: Carousel offered a bid of $30,000, a mere quarter of the cost of any other bidder.

The Honeoye, N.Y., firm develops training programs on personal computers using multimedia authoring software for clients such as Eastman Kodak Co. and Xerox Corp. "The quality is not the same, but it doesn't need to be," said Denny McElroy, Carousel's founder and president.

Computer-based training (CBT) is finally coming of age, thanks to low-cost PCs and object-oriented programming (OOP) software that turns course developers into multimedia producers.

OOP technology-based software authoring tools are a "monumental step forward in generating computer-based training programs," McElroy said. "Now the subject matter expert has the tools that allow him to sit down and do a presentation just like an author uses a word processing program."

"In the last two years, things have gotten a lot easier in CBT development, and it is largely because we don't have to have people with a dedicated programming background to do it," said James Hite, manager of instructional system development at Northern Telecom, Inc. in Nashville, Tenn. "What we're able to do now is have people keep their eyes on instructional design and pay more attention to meeting the client's learning needs."

The time saved in programming is shifted into producing more sophisticated programs that blend audio, graphics and text.

Northern Telecom uses a software authoring program called Authorware, published by Minneapolis-based Authorware, Inc. The program can create marketing presentations and training programs, Hite said.

"Once you have the source material, it is extremely easy to create an application," said William Bayer, educational services manager at Richard D. Irwin, Inc.

"The biggest challenge is getting source material," he said. "We recently had a situation where we were working on [an Apple Computer, Inc.] Hypercard stack, and the author wanted to include a sound resource. We were floored by the cost of permission to use a small snippet of sound. It was unbelievably expensive, and we could not afford to pursue that option."

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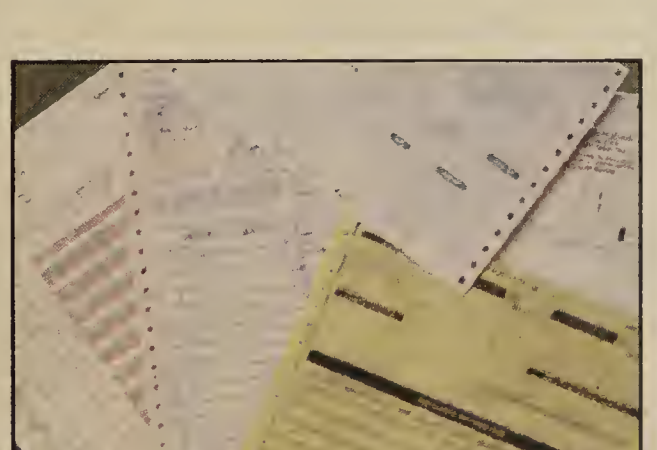

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EDITORIAL

Strategy stew

YOU'VE PROBABLY HEARD this one, but in case you haven't . . .

A woman appears three times in front of a divorce court judge, each time saying her marriage had never been consummated. Her first husband, she said, had been hurt in the war and just, well, couldn't. Her second husband was too old and wasn't interested. Her third? An IBM salesman who sat on the end of the bed telling her how great it was going to be.

These days, you can replace the Big Blue suitor with any number of salesmen from companies that have proclaimed various and oftentimes grandiose statements of direction. There's CA '90s from Computer Associates International; Network Application Support from DEC; AT&T's Unified Network Management Architecture; OCCA or Open Cooperative Computing Architecture from NCR and on and on. The list is prodigious.

In most instances, there are two reasons why vendors make such pronouncements. The publicly stated reason is that the large customer bases of such companies need to know what the future will bring from major suppliers. These customers want assurances that investments made today will be protected with architectural enhancements and continued support in the future. They also want to know where their suppliers' strategies fit into the framework of emerging standards. And third-party software companies need this advance information to gauge and direct their development efforts.

So these statements of long-term direction are good for the customer, you are told, even if they involve opening the kimono to other competitors as well as to the customer base.

The second reason is grounded in the harsher realities of doing business in an increasingly difficult world, in which the vendors are many, the real technology breakthroughs few and the customer demand waning in some key markets.

As the world grew more complex and competitive during the 1980s, vendors threw all sorts of products and product strategies at it, casting lines in whatever pools looked to have the biggest fish. Then buying preferences changed. Customers began aggressively downsizing. "Proprietary" began to be a dirty word, even though it characterized most large vendor strategies and, in fact, still does.

The result was a crying need on the part of some vendors to show that there was some purpose to what seemed like random strategies. This purpose was part of a continuum known as the "statement of direction," which always includes a promise of how good it's going to be.

These pronouncements certainly do serve a useful function in IS planning. Just remember that the strategies themselves, especially those that extend several years out, will be influenced and altered by dynamics no one can foresee. Also ask if yours is a vendor whose long-term strategy is a sensible articulation of direction or just a company casting about to justify the lack of a cohesive product strategy in the past.

LETTERS TO THE EDITOR

Vexed for Next

As a registered developer for the Next computer, we take strong exception to "Next finds revolution a Long March" [CW, June 18]. First, the purchaser of the Next computer receives an amazing variety of powerful applications bundled with the machine: Writenow, Tex, SQL, Mathematica and Digital Librarian, to name only a few.

Many other attributes such as Nextstep, Megapixel display, hardware Ethernet and Objective C under Mach make the Next personal computer the most powerful PC available.

The article dwelled on the lack of sales. You would have done better to discuss Businessland's marketing plan for Next: Its clients are large businesses, and large businesses are hardly the best place to sell innovation or increased productivity.

Steve Stalos
Oliver Industries
Laurel, Md.

Eyes on D&B

Having attended the McCormack & Dodge conference in San Francisco, I can relate to the concerns expressed by various users in "M&D users still fuzzy on D&B support plans" [CW, June 25]. Concern about support for M&D products began over a year ago with the introduction of the Professional Services Organization and the concurrent departure of several experienced field support personnel. At nearly the same time, changes were announced to the telephone support policy, and GL 2.0 users began to realize that there was no pathway forthcoming to migrate to the GL 3.0 version.

With the merger, most users have taken a wait-and-see approach. We are all interested in what Dun & Bradstreet Software means when it says it will "support" all existing products. The announcements made in the opening session are the first visible evidence of their intentions.

John Imlay was given the clear edict to make Next-Gen an evolutionary product, not a revolutionary one. However, should the implementation of Next-Gen require more resources than a normal upgrade, it will still be less expensive than purchasing, installing and learning someone else's software.

Scott Y. Davey
Assistant Controller,
Planning & Systems
Fairchild Fastener Group
Culver City, Calif.

Group dynamics

Your article "Meetings that aren't hard to take" [CW, June 25] brings deserved attention to computer-supported meetings.

I take exception, however, to the assertion that "If the group processes are already poor, then the technology can only make matters worse." This is simply not true. An otherwise dysfunctional group can often effectively make a decision because it used a group decision support system. This occurs because the support system imposes an effective decision-making process.

Group processes are critically important to successful meetings. Effective group decision support systems do not presume that existing processes are good. Their success results in part from the temporary imposition of a "good" decision-making process on the group. By focusing attention on process issues, group systems can help executive and management teams improve their everyday decision-making processes as well.

Sandor P. Schuman
President
Executive Decision Services
Albany, N.Y.

Computer cops

Supporters of hackers claim that the act of electronically wresting confidential information from computer files is a valuable learning experience [CW, June 25]. What odd thinking! Do we let teenagers pick locks on our doors and safe deposit boxes so they can learn about keys and combinations?

Information is a firm's most valuable asset. It deserves protection. I doubt that Mitch Kapor would want information about products under development at his company published in a hacker newsletter or on an electronic bulletin board. It's true that law enforcement officials sometimes seize more equipment and information than is necessary in their raids on hackers; they don't have enough training in this area to know what to look for. This is an argument for providing more law enforcement training, not for allowing criminals to run rampant.

John Tuomy
President
Leemah Datacom Security
Hayward, Calif.

Computerworld *welcomes comments from its readers. Letters may be edited for brevity and clarity and should be addressed to Bill Laberis, Editor,* Computerworld, *P.O. Box 9171, 375 Cochituate Road, Framingham, Mass. 01701. Fax: (508) 875-8931; MCI Mail:* COMPUTERWORLD.

Avoid the escalating 'soft-war'

JOHNNY MOO

Is Washington inadvertently entering into a software trade war that will hurt U.S. companies far more than it will help them?

I am afraid the answer to that question may be "yes," based on my company's recent experiences with the U.S. Department of Commerce. It conducted a seven-month investigation of my company, Computer Systems Advisers Group (CSA) in Singapore, to determine whether one of our software products was an "unfair" competitor in the U.S. marketplace.

Being from Singapore — a small country that is not only a very law-abiding society but one which owes its economic success to a vigorous belief in free and fair trade — some of my national pride was at stake in this investigation. We Singaporeans like to think we take Adam Smith as seriously as you Americans do.

I am therefore very pleased to say that we won our case. The Commerce Department investigators who came to Singapore and combed through our records ultimately found nothing unfair about our business practices.

One of our competitors in Massachusetts, Visible Systems, alleged that the government of Singapore gave us a subsidy for the development of CSA's software development tool, Pose. This "smoking gun" simply didn't exist.

However, the way the case was brought, the burdens it posed on my small company during the months of inquiry and some parts of the final decision are quite troubling to me. They are also troubling to many U.S. software companies, to the U.S.-based software trade association, Adapso, and to all who are concerned with preserving free trade for one of the most important products of our time — software.

Hindrance to free trade

Of greater consequence than CSA's victory was the Commerce Department's ruling that software, on a carrier medium such as a disk or magnetic tape, is merchandise. With this decision, the U.S. unilaterally turns software into a potentially dutiable item, creating a big setback for free trade in intellectual property. By treating software as ordinary merchandise — different from other intellectual property such as books — the U.S. contradicts its own position of enhancing free trade.

The majority of software vendors worldwide, and especially in the U.S., depend on software exports for a significant portion of their revenues. In raising barriers to the export of U.S. software by raising barriers to the import of software, the U.S. harms itself most of all. How can U.S. software firms possibly benefit, when protectionism initiates duties and higher prices for all exports?

Another issue troubles me: Software has been praised as an entrepreneurial, small-scale business. But when one company can cry wolf and, in doing so, bring the massive weight of the U.S. Department of Commerce down on another, the result is rather like a witch hunt, and someone gets burned.

Mark Kseniak

I fear for the rights of the accused when such a grievance, particularly one from another country, brings the invisible hand of U.S. protectionism slamming down. The damage to a company the size of CSA is substantial in terms of costs, lost sales and reputation. Had CSA been a lesser company, this investigation could have meant the death of a viable U.S. company: CSA, Inc., our U.S. subsidiary. With this practice, we will effectively be encouraging only giant companies with big international legal staffs and lobbyists to be in the software business.

Isn't the reason behind U.S. trade laws to protect U.S. firms against unfair competition? How ironic and fruitless that such laws, written with major U.S. competitors in mind, end up being applied to Singapore — a country with no global clout that poses no threat.

Most troubling of all is the charge of subsidy against CSA. CSA did not receive any subsidies from the Singapore government, but many countries trying to jump into the information age are using government subsidies. After all, the U.S. has done this for years, albeit in a different form. Isn't it true that U.S. Department of Defense (DOD) contracts with private corporations support research and development activities at those corporations? When most software is developed under a DOD contract, it remains the property of the developing firm, to be marketed and sold commercially. Should the definition of subsidy — of what is fair or unfair — be revised?

Law unto themselves

What will happen if other countries, which now let U.S. software in duty free, start imposing duties? What if other countries decide that U.S. software developed by companies with Pentagon contracts or other indirect subsidies is being "unfairly subsidized" and start imposing their own standards of fairness and retaliation?

Often in trade disputes, as in this one, supposed injured parties call for a level playing field. I would love one. To enter the software business, a Singapore company, unlike its counterpart in the U.S., has no domestic market to speak of. Building a customer base and field testing the product in Singapore takes much too long. Only with access to a larger market such as the U.S. can a company like CSA hope to survive.

To convince the venture capitalists to support this kind of activity with built-in disadvantages is very difficult and further tilts the playing field. Yet when a U.S. company with a U.S. subsidized product sells into my territory, my government does not interfere because of its principle of free enterprise. Yes, I really wish I had a level playing field.

Moo is chairman of Computer Systems Advisers Group, a Singapore-based firm.

Amiga: It's not just for games anymore

DOUGLAS BARNEY

If you ask any information systems professional about Commodore, after laughing for a few minutes, he will rattle off two major stereotypes. "They make game and home machines," he will say confidently.

Then ask about the Commodore Amiga. "Oh yeah. I hear that's a pretty decent little game and home machine," he'll say. And he'll be correct. Some people do buy Amigas to track baseball cards and play Techno Cop or Sex Vixens from Space.

What few realize is the technology that makes the Amiga a good game machine also allows it to do graphics, sound, animation and video work.

The almost 5-year-old Amiga has multitasking, the ability to address many megabytes of random-access memory and three to seven dedicated custom processors (techies call this true multiprocessing) that speed disk access and graphics processing. It also has built-in stereo sound and video compatibility. Although largely proprietary, it can run MS-DOS, OS/2, Unix 5.4 with Open Look, X Window System and even Apple Macintosh software with the right add-ons.

These features have attracted a fanatical, ingenious and sometimes motley group of users. So while personal computer users were sorting data and filling in rows and columns, Amiga users were quietly running cable television stations, creating three-dimensional, real-time animations and building interactive touch-screen-driven kiosks.

Amiga also has a variety of IS style users including Northrop, NASA, NBC, ABC, the U.S. Treasury Department and Hewlett-Packard.

Escaping oblivion

Despite these users, the Amiga remained an underground and relatively minor computer phenomenon. That was largely because no one cared about niche markets such as video, TV, animation and kiosks. In fact, the Amiga came close to joining the ranks of the Radio Shack Model 100 and Osborne portable in total computer oblivion.

Then some marketing ace invented the term multimedia, which is simply the pulling together of all video, animation, graphics, text and sound.

Like any well-constructed buzzword, multimedia caught on. So Apple and IBM began to work on multimedia-ready hardware, and third parties worked the software and peripheral side.

This was the lifeline the Amiga market had been waiting for. The Amiga was designed with multimedia-style applications in mind. And with the recent announcement of Commodore's CDTV product, which combines an Amiga and an interactive compact disc/read-only memory device, Commodore also has a sub-$1,000 multimedia delivery platform. All of a sudden, people began to notice the Amiga.

In a perfect world, technology and logic would be enough to ensure Commodore's role in this market. But IBM and Apple are throwing around marketing and development mega-dollars. And every time they sneeze they get press.

Eighteen months ago, Commodore's attempt to penetrate untapped professional markets with the Amiga seemed hopeless, even laughable. There had been years of well-documented marketing and public relations neglect. Even its advanced technology had begun to stagnate.

It was the perfect time for a complete management shakeup, an all new true 32-bit Amiga 3000 and an icon-driven multimedia package called Amigavision. Slowly but surely the new Commodore executives recruited from Prime, Cullinet, NCR, IBM, Canon and Apple have begun to dispel the Child World image. They have also started to satisfy the corporate checklist with networking and open operating systems such as Unix.

There are new third-party products as well. Tops on my list is the Video Toaster from Newtek, a company based in Topeka, Kan. The $1,595 board slides into an Amiga, giving you a complete TV studio on your desk. At first blush, the product is a confusing array of special effects, video switchers, digitizers, two frame buffers (which capture video frames in super high-resolution), a genlock (for synching the computer signal to a video signal) and a point-and-click interface. At second blush, it is a remarkable tool for desktop video and multimedia.

Despite the more recent attention and fancy new products, the Amiga is still either shrouded or openly disparaged. But as IBM and Apple continue to educate the market about video, animation and multimedia, the Amiga's shroud will start to lift.

Barney is editor in chief of *Amiga World*.

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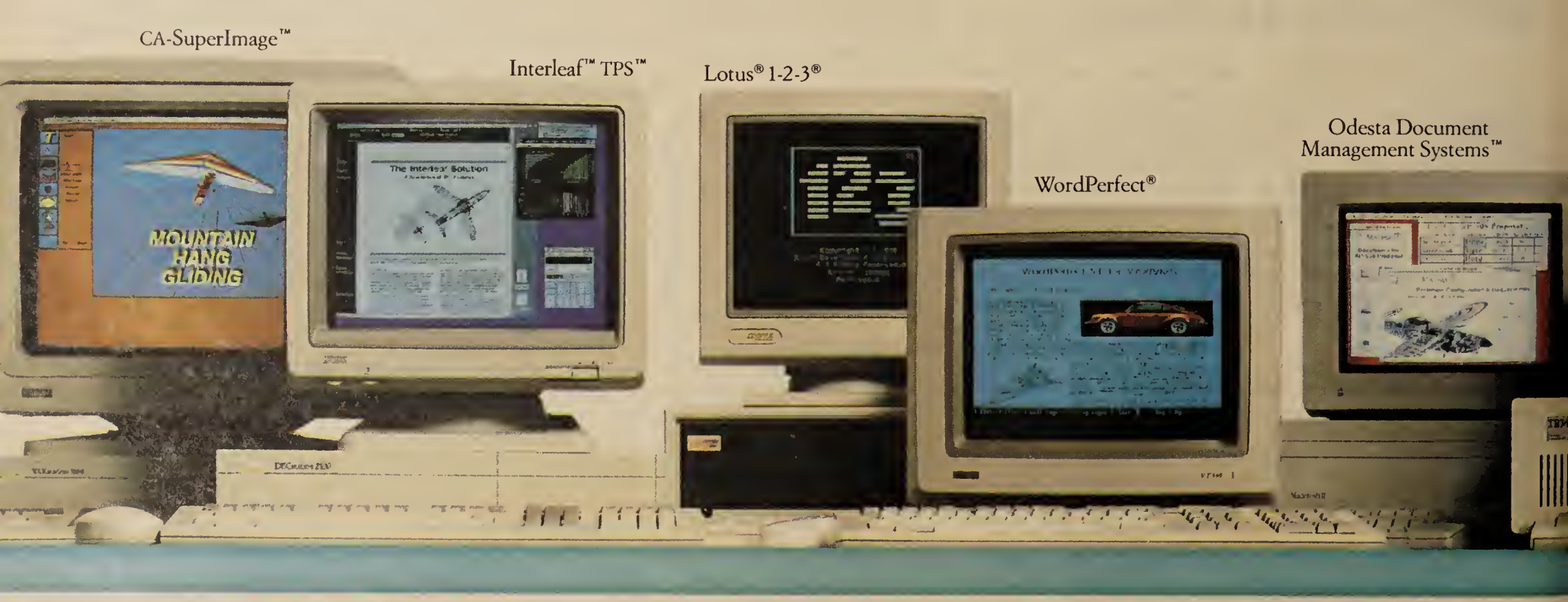

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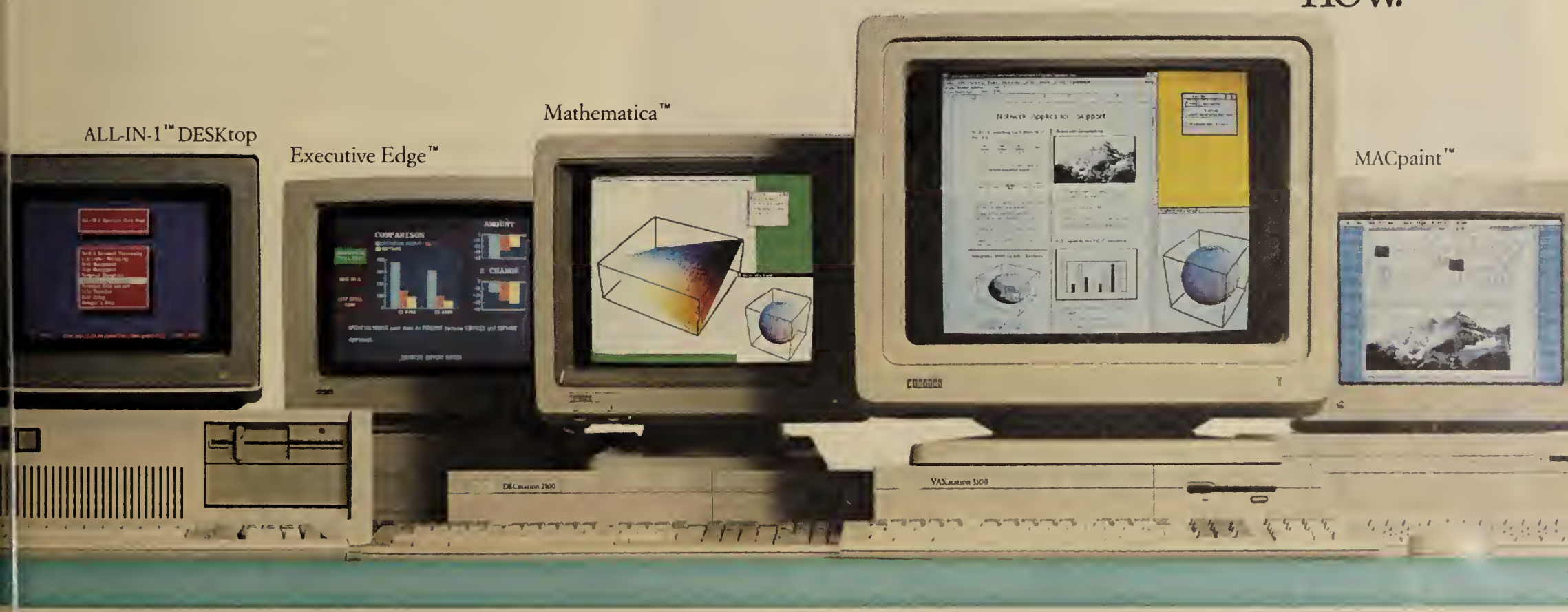

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COMMENTARY

Jean S. Bozman

Rude awakening

A report by a British consultancy is throwing some cold water in the face of the primarily U.S. relational database management system industry. The report, titled "Database, an Evaluation and Comparison," attempts to sort out the often misleading claims of DBMS vendors — and to make some general statements about the usefulness of RDBMS technology itself.

Now making the rounds of industry analysts and reporters, the $800 report, by Butler/Bloor Ltd. in Hull, UK, calls into question the on-line transaction processor performance claims of RDBMS vendors. A key tenet of the report is that RDBMS technology has been available for 20 years but still has not been proved in large, complex applications. The report notes that users associate these products with poor system performance, even though they may be flexible and easier to implement.

The report goes on to assert that the speed of nonrelational DBMSs, such as IBM's IMS/Fast Path and Hewlett-Packard's Turboimage, outweighs the flexibility and query orientation that RDBMSs provide. The authors raise the possibility of a market backlash in which the performance limitations associated with RDBMSs could lead to the reemergence of nonrelational options.

Continued on page 28

Federal Express counts on IMS

For packages and delivery, it doesn't get better than IBM's old DBMS

BY ROSEMARY HAMILTON
CW STAFF

Federal Express Corp. uses IBM's DB2, but when it comes to any job that involves packages and delivery, it still counts on IBM's IMS database management system.

The overnight delivery firm is now completing an upgrade to Version 3.1, the newest release of IMS. Most applications will run under IMS/Fast Path, a high-performance option. IMS Version 3.1 was introduced in late 1988 and made generally available in December 1989.

When Federal Express finishes the migration, IMS will be handling close to 13 million transactions per day. Its package tracing system alone does 6 million transactions each day, according to Tim Robertson, a systems manager at the firm.

For such high-volume transaction processing, Federal Express needs to rely on a trusted old workhorse like IMS, Robertson said. As a result, the firm was waiting for the improved release of IMS and installed it as soon as it became available. The new release provides several performance boosts, including virtual storage constraint relief.

Federal Express has been installing Version 3.1 in phases since March. The only major glitch occurred earlier this month when one of the last applications, a revenue system, was being brought over. Robertson said Federal Express does some "unique processing" with this system — which includes customer billing and accounts receivable — and Version 3.1 apparently cannot handle it. It goes into a "processing loop" that cannot be controlled.

Don Halpern

Robertson *sings Version 3.1's praises*

"IBM is working on it with us right now," Robertson said. "That's our No. 1 priority problem."

Other than this recent glitch, all other applications have moved over to Version 3.1 without much fuss, Robertson said.

"It's fairly stable and it's doing a pretty good job for us," he said.

The newest release brings several performance boosts, Robertson added. It provides virtual storage relief, allowing the IMS databases to expand beyond the 16M-byte line. Previously, the IMS databases were confined to what had been a 16M-byte architectural limit. With newer operating system releases, including MVS/XA and then

Continued on page 29

The best-laid plans of CASE and expert system vendors

BY JOHANNA AMBROSIO
CW STAFF

NEW YORK — Index Technology Corp. will introduce Excelerator Series 2.0 with a reaffirmed commitment to IBM's Systems Application Architecture (SAA) later this year.

This was part of the information shared at a recent computer-aided software engineering (CASE) conference sponsored by the San Francisco-based investment banking firm of Volpe, Welty & Co.

Richard Carpenter, president of Index, said his company will announce the next generation of its Excelerator systems analysis and design tool by the end of the year. It will be "a series of fully compatible products" for OS/2 workstations, he said.

In addition to supporting SAA and IBM's Repository Manager, the new tools will be based on an object-oriented architecture, Carpenter said.

The first version of Excelerator 2.0 will run under OS/2 Presentation Manager. Versions will then be introduced for Unix and Digital Equipment Corp. VAX computers, Carpenter said.

Other CASE products the firm will unveil later this year include a code-scanning tool "to read Cobol code of existing applications into Excelerator," Carpenter said. The firm will also introduce a full life-cycle CASE family for DOS computers.

Finally, Carpenter said that IBM has paid Index "a $1.5 million license fee for a new AD/Cycle product to be announced later this year." He did not specify what that IBM product will be, however.

Knowledgeware, Inc. Vice-President Gene Ellis said his firm is also developing a CASE product with IBM. Knowledgeware has already licensed "certain portions of our Intelligent Encyclopedia" to IBM, he said.

Knowledgeware will support Repository when the time is right, Ellis promised. "As the migration to IBM's AD/Cycle progresses, our tools will share information via Repository just like they do today with our dictionary," he said.

Bachman Information Systems, Inc. in Burlington, Mass., will "broaden our capabilities into the process side," said Arnold Kraft, president and chief executive officer.

Upcoming CASE products from other companies include the following:

- VIA/Renaissance, a re-engineering tool for IBM mainframes, will be available in December from Viasoft, Inc. in Phoenix.
- Reverse engineering software for computers running OS/2 Presentation Manager from XA Systems Corp. in Los Gatos, Calif. The package, written in C, is in the prototype stage; it will be several months before it is available.
- An OS/2 version of PowerCASE from Cognos, Inc. is due later this year. The analysis and design tool will be available for Unix platforms next year.

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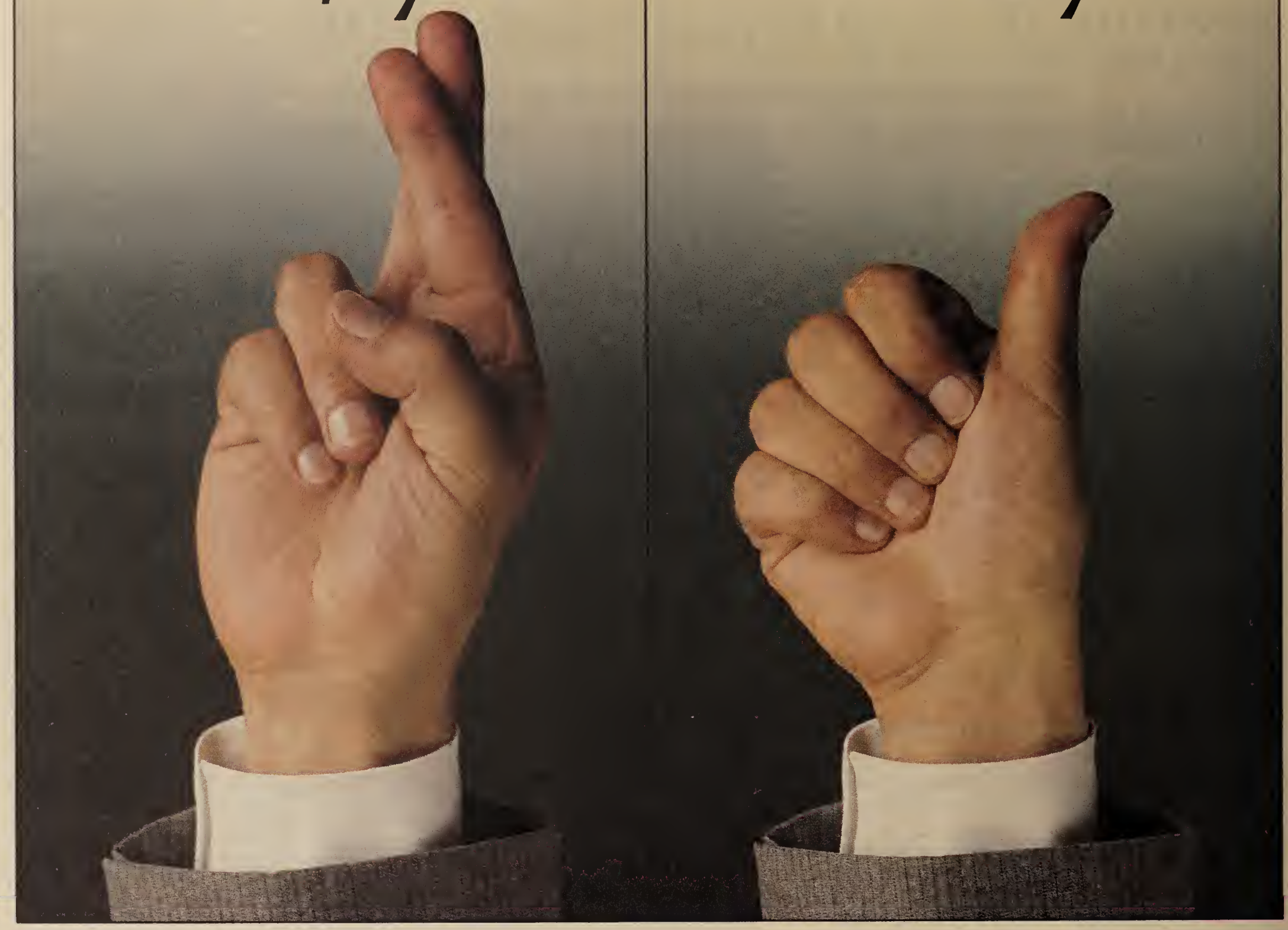

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Merger recipe blends systems

Pacificorp moves toward open systems architecture for its future

BY JEAN S. BOZMAN
CW STAFF

PORTLAND, Ore. — As a merged company, $3.7 billion Pacificorp ended up with two of everything: two computer rooms, two mainframe security packages and two information systems staffs. However, the economy of scale brought about by the 1989 merger of Pacific Power and Light and Utah Power and Light did not mean everything could stay twice as big.

On the contrary: Management had to choose which parts to keep and which to eliminate. Now, 18 months after the merger, there is just one primary computer room that remains, located in Portland.

There is one security package, Computer Associates International, Inc.'s Top Secret — IBM's RACF is gone. The IS staff, reduced from 400 to fewer than 300, is awaiting further cutbacks. And the total work force is about 7,000 — 1,000 fewer than the original merged work force of 8,000.

In the central computer room, IBM's IMS and DB2 databases reside on two IBM mainframes, supporting most administrative functions; Utah's aging IBM mainframes have been decommissioned.

The corporate accounting, financial and warehouse database management systems are IMS systems, while the sales and marketing information is consolidated on IBM's DB2 relational DBMS.

There is also a second, distributed tier of computing. Dozens of Digital Equipment Corp. VAXs, scattered throughout Pacificorp's power grid in Oregon, Utah, Washington and Wyoming, store power-generation and engineering data in flat-file databases.

Both Pacific Power and Light and Utah Power had used VAXs before the merger. Under a new RDBMS strategy, however, Oracle Systems Corp. databases have been installed on two VAXs in Oregon and on one VAX in Utah.

Due to a corporate directive to move toward an open-systems architecture, this mixture of DEC and IBM machines does not pose a problem. "We want to leave ourselves open to bring in many products," said Wayne Horscroft, director of data management. "We feel any part should be interchangeable. We will avoid having any vendor bundle us into just one solution."

Linked together by Decnet, Ethernet and Transmission Control Protocol/Internet Protocol network protocols, the VAX systems access the central IBM hosts through custom interfaces. Moreover, the DEC and IBM host systems can be accessed from Apple Computer, Inc. Macintoshes and IBM Personal Computer clones.

"If you believe data is a corporate resource, it should be available for anyone to query, providing they have a need to know," Horscroft said. "People should not have to wait a week for MIS to generate a report from the databases."

Flexibility is key to Pacificorp's computer strategy while the firm repositions itself as an energy-services company. Approximately 75% of the company's revenue comes from power generation, but the firm also owns several mining operations and an independent telephone company, Pacific Telecom, which operates in Alaska and the Pacific Northwest.

To support that business strategy, Horscroft wants to squeeze more business information out of data already on hand. Future projects will strengthen links between the IBM and Oracle databases.

"We're striving to have a blend of systems," he said. "If you organize your data correctly and do your analysis properly, then you can focus on data presentation. That's where SQL, which gives you access to multiple databases, begins to shine."

Rich Frishman

Pacificorp's Horscroft *blends DEC and IBM machines*

Easy EIS access

PORTLAND — Managers in a flattened organization such as Pacificorp need to keep their hands on the steering wheel. To detect any shifts in their business as soon as they occur, 30 Pacificorp executives have Apple Macintoshes on their desks — and the ability to peruse corporate databases at will. The in-house-developed executive information system (EIS) is designed to make such access easy, without the distractions of log-on sequences and SQL statements.

The EIS system came on-line in June 1989, and a second phase is due in October. "We've designed a point-and-shoot system," said Brian Hedman, information systems administrator, who works on user-friendly interfaces based on the Mac II hardware platform. "The intent is to provide access for executives to many corporate databases, without them having to know how to navigate or to read the documentation." Another 30 users, all assistants to the executives, also use EIS.

Rich Frishman

Pacificorp's Hedman

A first version of the EIS automatically logs executives onto the IBM mainframe. By clicking on icons, the managers gain access to electronic mail, a phone directory, the marketing DBMS and other system resources. To get power-generation data, users point and click their Mac II mouse on color maps of the Pacificorp power grid. A second EIS version, still under development, will link the underlying RDBMSs and will allow users to combine data from IBM's DB2 and an Oracle database in a single query.

JEAN BOZMAN

Rivals vie for room in hotel business

BY JOHANNA AMBROSIO
CW STAFF

The battle of the hotel reservations systems rages on, with two major competitors trying to outdo each other in features and services.

The two coalitions' plans for centralized hotel reservation systems began to take shape recently. The emerging picture shows both groups trying to provide the same services using different marketing strategies. One group, Covia Loews Automated Services (CLAS) in New York, is backed by the Loews Hotel chains and Covia. Its turnkey reservation system is called Reserve and is based on Covia's existing system, Covia Reserve.

The other group, ABHM, has a system called Confirm 800 that has been on the market since March 1988. ABHM, based in Carrollton, Texas, is a joint venture among AMR Information Services, Budget Rent-A-Car Corp., Hilton Hotels Corp. and Marriott Corp., the initials of which form the acronym ABHM. Both groups' systems provide a means for hotels to track and confirm reservations, and both rely on a centralized mainframe to update a database about each hotel and the rooms available.

Once a reservation is made, the central database is updated, and hotels can get the information through on-site terminals or daily reports. Hotels can also let vendors know how they want the room listings to read, and if the rates change, the database can be altered accordingly.

Both systems can interface with property-management software and offer links to airline reservation systems such as American Airlines' Sabre. This allows travel agents to access hotel information while hooked into the airline systems.

Some confusion has resulted from ABHM's announcement that it is developing a new system to be ready in 1992 [CW, May 28], but an ABHM executive said the new system is simply an enhancement of the old one. "We will be adding functionality to our existing Confirm 800 system," said Chris Riga, vice-president of reservation systems marketing at Confirm 800.

In two years, Confirm 800 will include automated yield management and the ability to determine which travel agents booked which guests and how many nights the guests actually stayed in the hotels. This will help hotels pay agents accurate commissions, Riga said.

However, he acknowledged at least one shortcoming of ABHM. "We should never have positioned the new system as a separate one from the existing system. They're actually the same product," Riga said.

CLAS is trying to capitalize on that mistake. "You have to ask yourself why they are developing a new system if what they have is totally acceptable," said Tom Caudill, general sales manager at Covia Reserve.

However, Riga said, "We are doing exactly the same thing as they are. The only difference is that the Reserve system is physically resident on the same computer that houses the Apollo system, and ours is on a different mainframe than the Sabre system."

Riga also said there are differences in how both groups package and market their products. For example, both vendors sell private-label reservation services, which include personnel to answer phones and book reservations.

Reserve and Confirm may run into similar roadblocks trying to talk hotels into outsourcing what is perceived to be a strategic component of hotel operation. Executives from both ITT Sheraton Corp. and Best Western International said they consider their reservation systems to be too important to consider outsourcing [CW, May 28].

Darrel D. Waite, an information management consultant for Ramada International Hotels & Resorts in Phoenix, said, "That's the biggest question asked in the hotel industry today — who owns your reservation system? It's not a technical issue. If franchisers don't own and operate their system, they have no means of differentiating what they offer to the franchisees."

On the other hand, firms that own and operate hotels instead of running franchises may be attracted to the outsourcing option if it proves to be less expensive than doing it in-house.

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Bozman

FROM PAGE 23

The report, written by experienced database consultants Robin Bloor and Martin Butler, appears to have hit on a basic market truth: Users have been hedging their bets on RDBMS.

That much can be seen in IBM mainframe users' attitudes about unplugging IMS, the IBM transaction-processing engine, in favor of the relational IBM engine, DB2. "We run our business on IMS," one Midwestern user told me. "We had it 10 years ago, and I predict [we] will have it 10 years from now."

Well, if users won't unplug their IMS in favor of DB2, what are they doing with DB2? For many, the answer is this: They put DB2 into production for query-oriented, decision-support applications or for the corporate warehousing of inventory and historical data. User meetings across the country have documented this pattern in oil and pharmaceutical firms.

What about those firms that have added RDBMS to their satellite locations where the systems run on VAXs or on Unix machines? The various RDBMSs are popular, and sales are brisk as distributed servers of corporate data multiply. Most RDBMS firms, including Informix, Oracle and Sybase, are still growing fast, regardless of concerns about a recession.

But rarely is any brand of installed RDBMS the only one in the shop. Instead, companies such as Pepsico and Liberty Mutual use different RDBMSs in different divisions and for different applications. As distributed DBMS applications evolve during the next two years, applications will be designed to "pick off" data from multiple RDBMS sources.

If all this is true, will RDBMS technology have to change in the near future? Perhaps not immediately, the Butler/Bloor report says, but RDBMS vendors will probably have to tinker with the physical storage methods that underlie the logical DBMS design if they want to address performance deficiencies. That could take years to accomplish.

For the time being, many vendors recommend hardware and memory upgrades as a way to compensate for poor response times. Such "fixes," however, are temporary, the report notes. "Hardware price/performance improves by around 15% a year," the report says. "Since the overhead associated with relational database increases exponentially with size and complexity, hardware has no chance of keeping up with this performance overhead."

Bozman is *Computerworld's* senior West Coast editor.

Unisys/Sun alliance signals Unix move

BY JEAN S. BOZMAN
CW STAFF

SANTA CLARA, Calif. — Unisys Corp. recently nudged its heretofore proprietary fourth-generation languages (4GL) and computer-aided software engineering (CASE) tools into the open systems world of Unix when it struck a deal with Sun Microsystems, Inc. to comarket Unisys' Ally and Mapper products.

Because of Unix' wide portability, the move at the Database World conference is expected to reach beyond Sun's Scalable Processor Architecture workstations and to bring additional alliances with other Unix vendors.

"We knew for about a year that Unisys was going to license their 4GLs," said George Lindamood, a Unisys watcher at Gartner Group, Inc. in Stamford, Conn. "The only surprise was that they chose to do this through a subsidiary [called Foundation]. That's almost like Apple Computer, Inc. forming Claris [Corp.]"

The agreement gives Unisys a new workstation platform for its installed base, since the Blue Bell, Pa., mainframe vendor does not currently market any engineering workstations. In addi-

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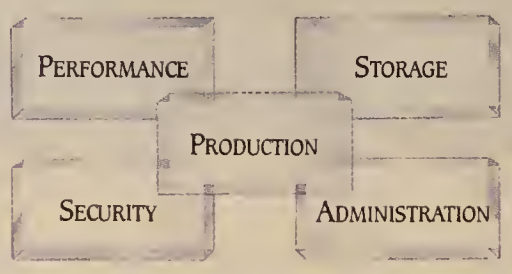

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tion, Sun gets to sell Ally, an information systems tool for developing distributed database applications, and Mapper, a 4GL for end users.

Because both Ally and Mapper have C compilers, applications generated by the products will be portable to many hardware platforms.

Ally, which had been used within Unisys to import data from multiple databases, will allow Sun workstations to act as "clients" for many "server" databases.

"Ally and Mapper bring us a [way to] have a consistent interface to multiple databases," said Nancy Colwell, group market development manager at Sun. Unisys representatives said Ally has links to relational database management systems made by Oracle Systems Corp., Informix Corp. and Unify Corp., among others.

Both products will be available in September. Ally will be priced at $11,000 for each Sun workstation supported, and Mapper will cost $1,100 per workstation, Unisys said.

Ally software for larger Sun servers will be priced as high as $39,000.

IMS

FROM PAGE 23

MVS/ESA, data storage areas within the processor were greatly expanded. Now IMS can take advantage of them.

"We are now building two more IMS systems because the storage relief is so great," Robertson said.

A second benefit comes from what Robertson referred to as hot region support. This allows for more efficient scheduling of transactions and has resulted in a 30% less CPU utilization with the company's dispatch system, Robertson said. This feature provides IMS with a method of searching for like transactions that requires either similar data or system resources to complete the transaction. The result is less time spent searching for data for each individual transaction.

Currently, most of the Federal Express IMS applications run under Fast Path, which has fewer features than the full-function IMS but is optimized for transaction processing. Less critical administrative applications run under the full-function IMS. Meanwhile, DB2 is "its own animal," for which Robertson is not directly responsible.

"We are basically trying to get it to be an end-user-type product," he said. "It doesn't have its own system yet."

Robertson said Federal Express uses a "ratio of 1-to-2-to-4 to determine with which database an application belongs. What IMS Fast Path takes one second to do, IMS will take two seconds, and DB2 will take four," he said. "There's a tradeoff to all of that. With DB2, the coding may be quicker, but with IMS you have more options. Everything is weighed. So, we try to make the best fit here."

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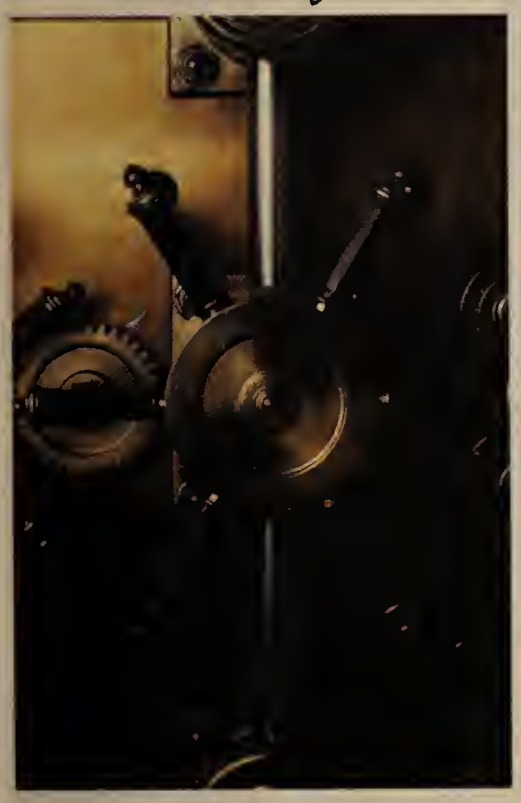

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SOFT NOTES

Sablesoft, IBM ink pact

Sablesoft, Inc. in Boulder, Colo., said it signed a deal with IBM to become part of the IBM Cooperative Software Supplier Program. This gives IBM nonexclusive rights to market Sablesoft's Compile/QMF, a utility product for IBM's QMF that converts QMF queries into a Cobol program.

Asoft Development, Inc. has ported its Nu/TPU programmable text editor to the Convex Computer Corp. minisupercomputer platform. The text editor will allow users to work in a Digital Equipment Corp. VMS-like environment on the Convex platform, according to the company.

Touch Technologies, Inc. in San Diego announced an agreement with Winchester Systems in Woburn, Mass. Touch develops tape acceleration software technology, which Winchester plans to use with its Archive 4mm tape drives. Touch's technology prevents the start-and-stop process of a tape drive, which can wear out a tape.

NEW PRODUCTS — SOFTWARE

Applications packages

Data 21 has announced CICS Help 4.2, an IBM Systems Application Architecture (SAA) Customer User Access help authoring and display system for CICS applications.

The product facilitates the creation, maintenance and display of SAA CUA help panels for CICS applications without program changes. It supports SAA CUA requirements that control panel design and user interaction for Field Help, Extended Help and Field Prompts.

A site license costs $10,995 for MVS and $6,995 for VSE platforms.

Data 21
3838 Carson St.
Torrance, Calif. 90503
(213) 543-5599

Service Data Management Corp. has announced an add-on module for Service Edge, a field service management system that runs in Prime Computer, Inc.'s Primos, AT&T Unix System V and Digital Equipment Corp. VAX/VMS environments.

The Technical Assistance Center Management module was designed to assist individuals whose primary jobs are telephone or help desk support. The software package enables users to sort and manage open calls and provides an efficient way to reference historical data as a troubleshooting aid.

The product costs $15,000 for an unlimited number of users.

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4112 Locust Lane
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(703) 385-3939

Utilities

Outpost, a printing utility program from Trax Softworks, Inc., enables users of IBM mainframes to generate predefined forms on demand.

The program converts any printable file into Adobe Systems, Inc.'s Postscript. Users can select fonts such as Zapf and Chancery in large and small point sizes and specify typographical effects such as bold and italic typefaces. Graphics support is also offered, allowing boxes, arrows, circles and horizontal or vertical lines to be created.

Outpost is available for IBM VM and MVS systems for $4,000 to $6,000, depending on CPU size.

Trax
5840 Uplander Way
Culver City, Calif. 90230
(213) 649-5800

NEW PRODUCTS — HARDWARE

MAI Basic Four, Inc. has announced its GPX Series 70 systems.

The series includes Models GPX 5070 and GPX 6070, both of which feature a symmetrical multiprocessor architecture. The 5070 can support up to 192 users and the 6070 can accommodate 256.

Pricing starts at $89,500, and typical end-user configurations range from $190,000 to $540,000.

MAI Basic Four
14101 Myford Road
Tustin, Calif. 92680
(714) 731-5100

Data storage

Distributed Logic Corp. has added a tape status panel to its line of 4mm and 8mm cartridge tape subsystems.

The panel incorporates an LCD and an LED to indicate the status of tape-handling operations. The company's line of tape subsystems work with any computer equipped with a small computer systems interface (SCSI) bus.

A 4mm digital audiotape drive in a shoe box tabletop enclosure with a controller and SCSI cabling lists at $5,495. An 8mm subsystem in a single-drive configuration has a list price of $6,295.

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COMMENTARY

Douglas Barney

Multimedia misfit

Microsoft has a truly uncanny ability. I mean, who else can so nearly dominate a market without even announcing or shipping a product? All Microsoft has to do, it seems, is announce an intention or two, and it gains instant market position.

In the latest instance, Microsoft announced an approach to multimedia. Based on a few vague proclamations, and even more vague Microsoft third-party announcements, the firm is suddenly considered a leader in the market. But what exactly did Microsoft announce a couple of months ago? When will this strategy truly unfold? And what are the limitations of the Microsoft Multimedia Manifesto?

Answering these questions will involve a certain amount of conjecture, because Microsoft neglected to announce real products or give real timetables.

As one can imagine, Windows is the cornerstone of Microsoft-style multimedia. The company pledges to build in extensions that will allow Windows to handle video, graphics and sound. Of course, Windows will be running on an enhanced personal computer with compact disc/read-only memory

Continued on page 37

Rivals put heat to Apple's feet

Low-end lasers may not be enough to fight off competitors' onslaught

ANALYSIS

BY JAMES DALY
CW STAFF

In the military, it is called a protective reaction strike. In the computer industry, they say you are "becoming committed to a market." Either way, it adds up to the same thing: Go after your enemy before he builds up enough strength to chew your head off.

When Apple Computer, Inc. unveiled a pair of entry-level laser printers earlier this month, the Cupertino, Calif.-based company was moving aggressively to protect a valuable but vulnerable gem. Threatened by increasingly intense low-cost competition, Apple has embarked on an ambitious campaign to shore up its embattled position in a printer market that was once nearly free of competitors.

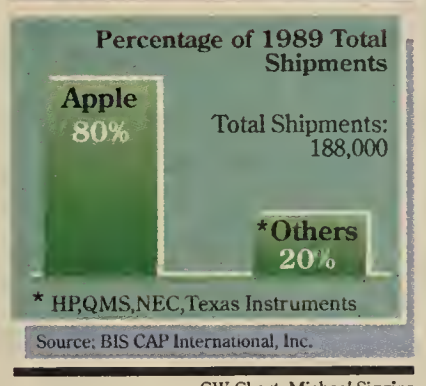
But some analysts are already criticizing Apple's defensive pace and have criticized the new Apple printers as too slow and too expensive. "Apple is watching as others eat its lunch," said Benny Lorenzo, an analyst at San Francisco-based investment firm Volpe, Covington & Welty.

It is a tasty meal at that. Printers are a cash cow at Apple, accounting for approximately $850 million of the firm's $5.3 billion in revenue last year, First Boston, Inc. analyst Charles Wolf said.

But Apple has seen others devouring its base in the laser printer market's low end, particularly among the printers that use the popular Postscript page description language software offered by Adobe Systems, Inc. Hewlett-Packard Co. has scored with printers designed for Apple

Nibbling Away

Apple still dominates the Macintosh-Postscript laser printer market, but other suppliers are now making their mark



CW Chart: Michael Siggins

Macintosh systems that start at just over $1,000, which is almost $2,000 less than Apple's earlier low-end laser printer. Texas Instruments, Inc., NEC Corp. and QMS, Inc. have played off Apple's traditionally higher prices to chop away at its sales.

In the less sophisticated applications that use the Quickdraw routines residing in each Macintosh, GCC Technologies in Waltham, Mass., has gobbled up 40% of the Macintosh printer market, according to BIS CAP International, Inc., a research firm in Norwell, Mass.

Today, Apple still owns approximately 80% of the Macintosh laser printer market, BIS CAP analyst Rob Auster said, but that could slip dramatically during the next few years unless Apple moves aggressively to lower its prices and pack more into its laser printers.

The cloud looming over Apple's printer division contrasts with a blissful past. In 1985, Apple hooked up with Mountain View, Calif.-based Adobe, which

Continued on page 40

Multiuser DOS group plans to compete with LANs

BY PATRICIA KEEFE
CW STAFF

User indifference and concern over lost market opportunities have driven a collection of hardware and software vendors specializing in multiuser DOS-based systems to form a coalition designed to promote their minicomputer-like approach as a cheaper alternative to local-area network-based work groups.

Members of the newly launched Multiuser DOS (MDOS) Federation want to increase awareness and acceptance of their terminal-based approach to work groups. It will also define programming guidelines, standards for peripheral interfaces (video, terminal and serial I/O) and DOS memory-management techniques.

"For years, the industry has fostered the myth that the LAN is the only way for businesses to get work-group computing," complained Peter Davis, president of Sunriver Corp., based in Austin, Texas.

LANs may not be the only way, but they are the right way for users who plan to migrate to graphical user interfaces and client/server architectures, according to Gartner Group, Inc. analyst Leslie Fiering, formerly a personal computer manager at a New York bank.

Several users and analysts contacted last week suggested that the MDOS Federation faces an uphill climb in corporate accounts already saturated with PCs and would be better off focusing on small businesses.

"Multiuser DOS sounds like a contradiction in terms," said a skeptical Brian Illari, a vice-president in charge of LANs at Citicorp in New York. That is just the attitude that federation member Joe Tyner, president of Minneapolis-based Starpath Systems, Inc., is trying to combat.

While conceding that users are unlikely to give up their intel-

Continued on page 37

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4. Quality of documentation (0.97)	10
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Weighted Score	**9.6**

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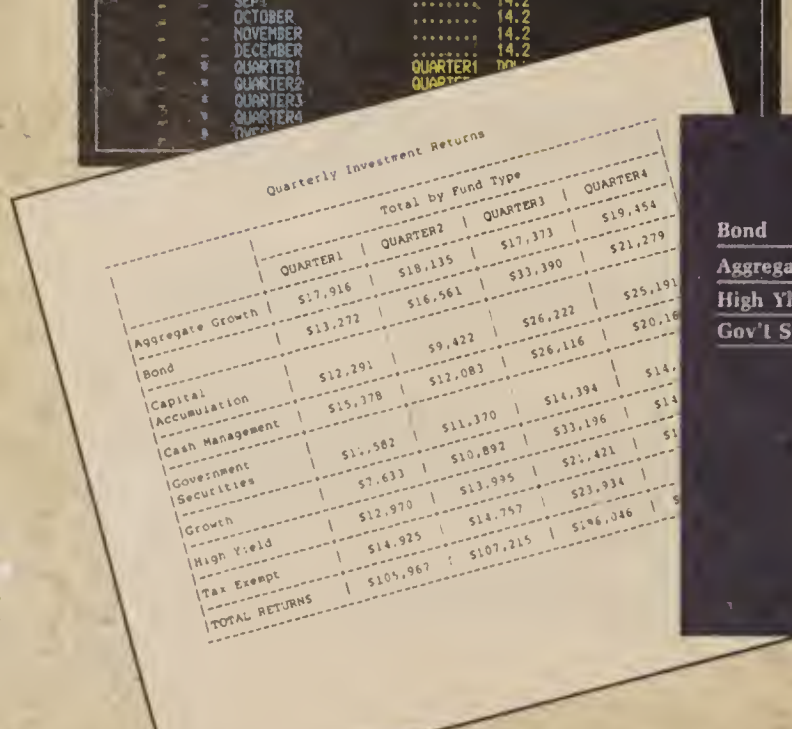


PRODUCT REVIEWS

Windows 3.0 ends the wait

Advanced memory management allows for more powerful applications

Microsoft Corp.'s Windows 3.0 is, in many respects, an entirely new environment that will provide users with many of the features they have wanted for years but thought they would have to switch to OS/2 or Unix to get. Many users will now be able to use Windows as their primary operating environment for running both Windows-based and traditional DOS-based applications.

Although Windows 3.0 does not have the memory management features of OS/2 or Unix — limited as it is by running on top of DOS — its most significant feature is its advanced memory management capabilities. The environment uses the protected-mode features of the Intel Corp. 80286 and higher CPUs, providing access to extended memory, better multitasking and more powerful applications.

Windows 3.0 can run in one of three modes. Real mode runs much like Windows did before; standard mode requires a 286 and at least 1M byte of memory; and a 386 enhanced mode lets the system act as if it had more memory than it really does by swapping to disk. In enhanced mode, multiple non-Windows applications can be run, each in its own "virtual machine."

Windows 3.0 sports a much-improved user interface, including a better three-dimensional look to buttons and controls, more colors on-screen and new icon-based ways of launching applications and managing files.

The old MS-DOS Executive has been replaced by three new applications: The Program Manager, the File Manager and a Task List. The Program Manager makes it easier to start applications; the File Manager makes it easier to find files; and the Task List simplifies switching among running applications.

With a few notable additions and changes, Windows 3.0 has the same native accessories as previous versions.

Paintbrush is a color painting/drawing program that is a great improvement on the old black-and-white Windows Paint. The Calculator includes a simple arithmetic machine as before, but there is also a new model with statistical, scientific and programming capabilities. The Clock looks the same in analog mode, but now there is also a digital mode. The terminal has been substantially revamped with new communications capabilities, and four COM ports are now supported.

Windows Version 3.0

Price: $149

- Performance: Good - Excellent
- Documentation: Very good
- Ease of setup: Very good
- Ease of learning: Very good
- Ease of use: Very good
- Error handling: Very good
- Support: Poor - Good
- Value: Excellent

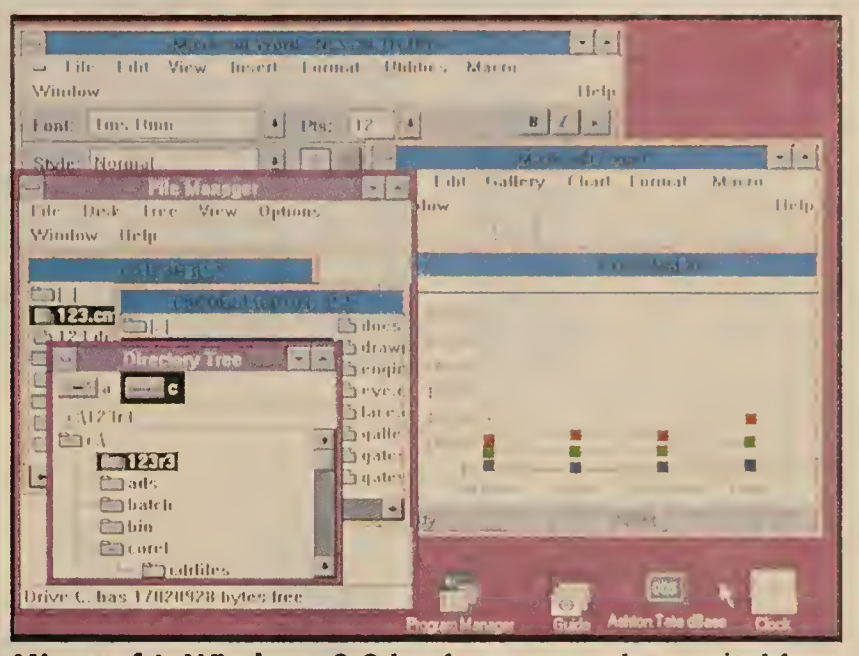
The Program Information File (PIF) editor has been expanded to cover memory management and multitasking capabilities. Also new is the Recorder, which lets users capture keystrokes and mouse movements and save them as macros. Macros can span applications.

The Spooler has been replaced by the Print Manager, which tells users which file is currently printing and what percentage of it is completed; it also lets users pause or terminate printing and alter the priority of local printing jobs.

Windows does not have preemptive multitasking and multithreaded applications. However, Windows 3.0 does let users run multiple Windows or non-Windows applications simultaneously. In 386 enhanced mode the PIF editor can be used to assign application priorities and foreground and background settings.

Microsoft includes network connectivity out of the box for industry-standard networks. During installation on a workstation, Windows recognizes the existence of a network driver and installs the correct utilities on users' systems. In general, this release handles networks much better than the previous version. Users do not have to exit Windows to perform common tasks such as attaching to a server or changing drive mappings. In the File Manager, specially marked icons designate network drives.

A final addition to the Windows features set is the new Help facility. This hypertext-like system provides indexes and in-depth discussions on virtually all Windows capabilities. However, it is not context-sensitive.



Microsoft's Windows 3.0 *has features users have waited for*

Windows continues to offer terrific data integration capabilities. Utilizing the Clipboard, users can cut and paste data between applications; this extends to copying text to and from non-Windows applications. Even graphics can be copied from non-Windows applications into Windows applications. Furthermore, a growing number of Windows applications now support Dynamic Data Exchange (DDE), which lets users create hot links between files so that when information in one file is changed, the change will be reflected in the other file.

Advanced guidance

The Windows Users' Guide covers all of Windows' features, operation and accessories and is complemented by a number of useful advanced sections on system optimization, networking and memory management.

Installing Windows has been streamlined to the point that it reads the information it needs directly from your system. There is also a Setup program that can be run within Windows to update the system configuration. Unfortunately, for nonsupported hardware devices that typically come with their own Windows driver, users will still have to resort to changing the SYSTEM.INI file.

Microsoft offers unlimited, free technical support on a toll line, as well as support via an electronic bulletin board. Phone lines are open Monday through Friday from 6 a.m. to 6 p.m. Pacific Standard Time. The technical support staff is adequately helpful.

Windows 3.0 costs $149, which is inexpensive considering its performance and capabilities. It costs only $50 to upgrade from any previous version or runtime version of Windows; however, applications for previous Windows versions may not run. While virtually all older applications will run in real mode, it is anybody's guess whether they will run in standard or enhanced mode, so the real cost will come in upgrading applications.

Microsoft, 16011 N.E. 36th Way, P.O. Box 97017, Redmond, Wash. 98073. (206) 882-8080.

Speed, clarity come in notebook-size package

Toshiba America Information Systems, Inc.'s T1200XE notebook computer is sleek and compact.

It weighs 9 pounds with its 1-pound battery and comes standard with a 20M-byte hard disk and a crystal-clear, 640- by 400-pixel, color graphics adapter, 9⅜-in. Sidelit Supertwist LCD. It has an Intel Corp. 80C286 processor running at 6 or 12 MHz with 1M byte of standard random-access memory, expandable to 5M bytes.

Toshiba supplies software to convert any RAM above 640K bytes to expanded memory. The hard disk and the 1.4M-byte, 3½-in. floppy drive are both very quiet and have fast access times, for a snappy and responsive feel.

Although its dimensions, 12.2- by 11- by 2 in., are somewhat large for a notebook, the T1200XE is exceptionally thin. Other standard features include a port for an optional 2.4K bit/sec. modem, one parallel port/external floppy drive port, one nine-pin serial port and an external video and keyboard port. External ports are easy to access.

Toshiba's T1200XE's *status lights are easy to read*

The T1200XE's battery runs for just over two hours. The Toshiba's resume mode capability shuts the system off when it is not in use and makes the system usable for longer periods.

The Toshiba keyboard has a firm feel, and with the exception of the half-size function keys, the keys are large and comfortable. It has separate cursor and Page Up/Down keys. The numeric keypad is overlaid onto the alpha keys. There is an external jack on the back of the machine that allows for an external keyboard or keypad as well.

Documentation consists of two DOS 4.01 manuals, two Toshiba T1200XE manuals and a set of "first time" manuals. All are well illustrated and clearly written. Also included is a troubleshooting guide, glossary and index. Setup consists of plugging in the power source and turning the computer on. The hard disk is preformatted with Toshiba DOS 4.01 and is ready to boot.

The LED status lights are bright and easy to read, and the power button is conveniently located in the rear. It ignores taps, so the system will not be turned on accidentally in transit. However, the latch that opens and closes the screen is too small.

Toshiba offers a one-year warranty that covers parts and labor and, at no additional cost, next-day turnaround on repairs with return by next-day air.

The T1200XE comes with an impressive list price of $3,999 and is backed up by outstanding documentation, support policies and technical support.

Toshiba America Information Systems, Computer Systems Division, P.O. Box 19724, 9740 Irvine Blvd., Irvine, Calif. 92713. (800) 999-4273.

Toshiba T1200XE

Price: $3,999

- Performance: Good - Excellent
- Documentation: Excellent
- Setup: Excellent
- Ease of use: Very good
- Serviceability: Very good - Excellent
- Value: Very good

MONO

Traditional PC LAN

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vs. MULTI

PC LAN with AViiON Server

Call 1-800-DATAGEN to learn how Data General and Novell NetWare let your PC LAN do more.

Data General has a host of Novell Portable NetWare® solutions that let your existing PC LAN run multiple applications simultaneously. Novell Portable NetWare on a Data General AViiON™ gives your PC LAN the power to share MS/DOS®, OS/2®, MAC/OS®, and UNIX® files. The power to cruise through MS/DOS, OS/2, and UNIX applications. And, the power to share peripherals.

Data General's NetWare for AViiON is the first RISC-based NetWare platform. It's fully scalable and can share the server with major standards like TCP/IP. It also uses the standard NetWare client software and Novell's IPX/SPX Networking Protocol, so it interoperates with existing Novell LANs. It lets users access scores of applications. And, Data General offers a Software Developer's Kit to facilitate the development of client-server applications.

Data General's line of Novell NetWare solutions brings transparent networking and distributed applications to all your PC clients.

To learn more about how an AViiON server with Novell's Portable NetWare can bring more power and more applications to your LAN, call the distributors listed below or 1-800-DATAGEN. Also, ask about Data General's full line of PCs.

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2545 Torpley Road
Corrollton, TX 75006
(214) 416-0103

Four Eves Drive
Marlton, NJ 08053
(609) 596-7775

Power, flexibility 1-2-3/G's strong suits, but not speed

REVIEW

Lotus Development Corp.'s 1-2-3/G, intended for use with IBM and Microsoft Corp.'s OS/2 Presentation Manager, is intended for advanced spreadsheet users who demand analytical power, flexibility and speed.

It fares very well in the first two categories; however, it lacks the speedy responsiveness of its text-based counterparts, especially on midrange systems. A 25-MHz system is necessary to achieve optimum responsiveness with 1-2-3/G.

1-2-3/G is a large program that is distributed on both 3½- and 5¼-in. high-density floppy disks and requires 12.5M bytes of free disk space. It uses a multipage, three-dimensional spreadsheet model and can work with up to 16 spreadsheet or graph windows at a time. A group of related worksheets and graphs can be saved as a desktop, which also retains the window sizes and placement.

In general, the program includes all the functionality of 1-2-3 Release 3.0, as well as such other analytical tools as regression, matrix functions and "what-if" table

1-2-3/G Version 1.0
Price: $695
• Performance: Satisfactory - excellent • Documentation: Excellent • Ease of learning: Very good • Ease of use: Excellent • Error handling: Very good • Support: Satisfactory - very good • Value: Very good

capability. It also adds several attractive features and makes use of multithreading by allowing some operations to occur concurrently. Support for any type of add-in or user-defined functions is noticeably lacking in this product.

Perhaps the most exciting addition to the program is the Solver utility for advanced "what-if" modeling. It can greatly enhance 1-2-3/G's ability to solve complex problems in which users must adjust several variables to arrive at an optimal value. For less complex needs, there is a more traditional goal-seeking feature.

This product is highly compatible with previous versions, and 1-2-3 veterans will have few problems adapting to 1-2-3/G. Despite the substantially different look and feel, most of the familiar keystroke combinations still work. The program will read files from all prior versions of 1-2-3 and can save files in .WK1, .WK3 or its own .WKG format. There is still no support for Microsoft's Excel files.

The database features generally mimic those found in Release 3.0. When sorting a range, there is virtually an unlimited number of sort keys available. Data cannot be sorted by columns, and true query templates are not to be found.

The area that shows the greatest departure from earlier 1-2-3 versions is that of graphics. Users can now graph as many as 23 ranges of data. 1-2-3/G offers the same variety of charts as Release 3.0 but includes a new 3-D bar graph type. Unfortunately, users cannot control the orientation or rotation. Graphs can be generated with the Graph command in the Worksheet tool or directly by using the Graph tool. The Graph tool also lets data be graphed from multiple worksheet files. A "printer view" displays the graph as it will appear in print. 1-2-3/G can export graphics metafiles to the clipboard, but it cannot write .PIC files.

1-2-3/G's what-you-see-is-what-you-get orientation, support for an unlimited number of fonts in a single worksheet and slick multipage preview mode all ensure quality output with minimal effort. However, although 1-2-3/G can print graphs on top of or below a spreadsheet output, it cannot print them side by side.

A new feature lets users define numeric formats using a format description language. Two dozen macro commands have been added to accommodate the new windows orientation. Lotus provides a macro translator that will automatically modify more complex macros to run smoothly in 1-2-3/G.

1-2-3/G carries forth the superior file-linking capabilities pioneered with Release 3.0. The product also supports Presentation Manager's dynamic data exchange.

1-2-3/G's printed documentation consists of seven well-indexed, illustrated paperback books, including a quick-start guide and a tutorial. The on-line Help system is excellent. The installation process is automatic and makes all appropriate modifications to the OS/2 configuration file.

Lotus provides six months of toll-free phone support at no charge. Support via electronic bulletin board and facsimile are also available. Registered users of other versions of 1-2-3 can upgrade for $75. Support representatives were friendly and answered questions satisfactorily.

At $695, 1-2-3/G costs more than Excel, but it meets or exceeds the capabilities of Excel in nearly every area.

Lotus Development, 55 Cambridge Pkwy., Cambridge, Mass. 02142. (617) 577-8500.

Wyse sets the standard in terminals again. And again. And again. And again.

WY-185

WY-370

WY-150

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Barney

CONTINUED FROM PAGE 31

(CD-ROM) and sound capabilities, IBM Video Graphics Array and a couple megs of random-access memory. This will happen whenever IBM or any other important vendor sees fit to build one without forcing the buyer to look to Phil Rizzuto for a home equity loan.

Yet Windows is one of Microsoft's biggest problems. Windows is great, or almost great, for things like databases and spreadsheets. It can even whip out some pretty nifty charts and drawings. It is not great, or even good, for mixing sound, graphics, video and animation. That's the "multi" in multimedia.

The PC architecture is another part of the problem. The original PC was designed with text in mind. Later versions are much faster but are still not up to the rigors of multimedia. They have enough trouble just running Windows. Even worse, there is very little sound capability and no video compatibility. And there isn't enough horsepower to drive real-time animation. How then is the PC to do all this stuff simultaneously?

Faster chips help but do not completely solve the problem. The PC must be augmented with a set of specific chips designed to handle the various needs of multimedia. A true multitasking operating system must be layered on top. Then the work can begin. But this is not Microsoft's plan. Instead, it is simply trying to retrofit the existing PC to handle multimedia tasks — all in the name of market share.

These are specific and clear-cut technical issues. The history of Microsoft's product development is more disturbing.

Take Windows, for instance. It only made the grade a couple of months ago with Windows 3.0, seven years after its announcement. And only in the past year has it gotten around to shipping a Windows word processor.

How about OS/2? It's been out for a few years, and only IBM employees seem to be using it. Sure, Microsoft Word is making its mark in the PC word processing market. But it took Microsoft several versions to get it right.

So how long will we wait for Microsoft to deliver the multimedia goods?

In addition, Microsoft has largely failed in its attempts to create and lead the market for CD-ROM. Sure, it still holds a swell conference or two. But what Microsoft has not done is to ship any products that create a compelling need for CD-ROM.

Funny enough, the only PC software vendor with any role in CD-ROM is Lotus Development, which quietly pockets millions off the stuff.

Beyond that, Microsoft has failed to define multimedia, explain exactly what is needed to produce multimedia applications or presentations and has not distinguished between the process of creating and the process of running multimedia. These are mere details, I guess.

Through hard work, ingenuity and plenty of luck, Microsoft earned its place in the world of systems software. It has even more clearly earned its leadership role in productivity applications. In both cases, the firm delivered products that enabled users to get jobs done.

In the case of multimedia, however, Microsoft is getting ahead of itself. Sorry guys. This time you've got to earn market leadership the old-fashioned way — with actual products.

Barney is editor in chief of *Amiga World*.

Multiuser

CONTINUED FROM PAGE 31

ligent PCs, Tyner predicted the two approaches will coexist.

"Proliferating PCs is crazy when you can use our collective technologies to share one fully configured PC," Davis said. However valid, Davis' point becomes moot in countless sites long overrun with PCs.

Many PC managers are trying to tie their PCs together. Both attempting to remove the intelligence from the desktop and taking a traditional mini-based approach to connectivity are steps backward, Fiering said. "You're asking the processor to time-share, and PC applications weren't designed to do that."

"If you go with a terminal-based solution, you throw away any chance you'd have to move up to a client/server environment," she added. "And as we move to a graphical user interface, you're going to need power on the desktop to handle the user interface."

Federation members represent a number of technologies that together facilitate the use of DOS applications in shared-processing environments.

A typical multiuser DOS system consists of an Intel Corp. 80386-based host equipped with serial port boards, multiple text or graphics terminals, a multiuser DOS environment and standard DOS applications.

Federation members claimed that this approach cuts the per-user cost in half when compared with a LAN — without compromising performance. This is attributed to displaying applications on low-cost terminals or graphics workstations instead of on intelligent PCs.

The 15-member federation includes Digital Research, Inc.; Advanced Micro Research, Inc.; Alloy Computer Products, Inc.; Sunriver; Theos Software Corp.; Link Technologies, Inc.; The Software Link; and Digiboard, Inc.

Wyse became the number one manufacturer of general purpose terminals by repeatedly redefining the state of the art in terminal design. Not just in one category, but across the board. And with the four terminals that make up our fourth generation, we've done it again. Each one represents the ultimate achievement in its class. Our WY-150 sets the standard for alphanumeric monochrome terminals. The WY-370 brings unprecedented functionality in color. And the WY-185 is the most advanced DEC-compatible. Our newest entry, the WY-160, offers a combination of features found in no other monochrome terminal. It lives up to Wyse's well-known ergonomic standards, with its full-screen overscan, fast refresh rate and high resolution. It has the flexibility to support more than 16 ASCII, ANSI and PC emulations, as well as PC and Tektronix graphics. And it raises performance standards with the fastest baud rate in the industry, plus a dual-session capability that allows you to access two hosts simultaneously. Of course, the reason we keep raising our standards is to meet yours. And since we make more terminals to fit more system configurations than anybody else, we're sure to have the one that fits yours best. Call us at 1-800-438-9973. Because if you thought you'd seen everything in terminals, we have four reasons to look again.

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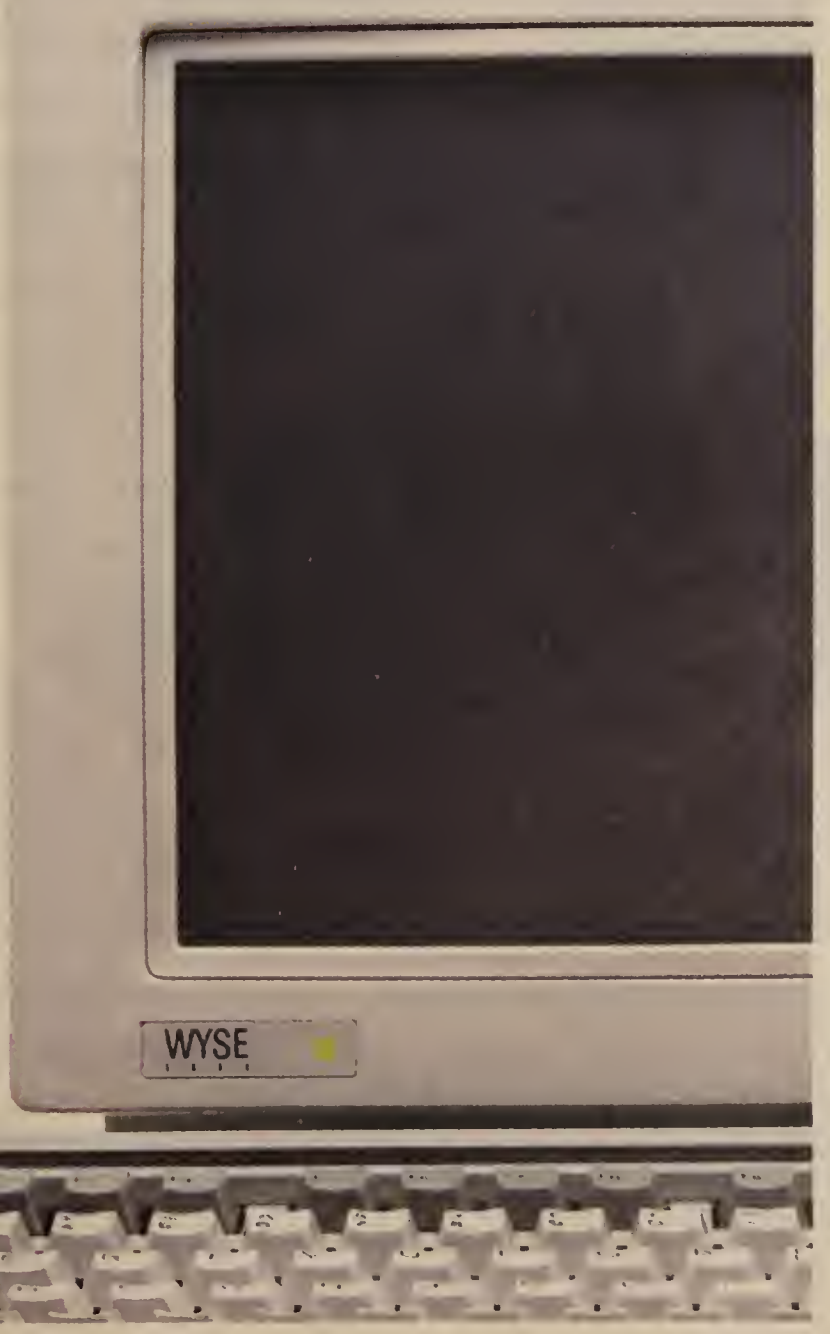


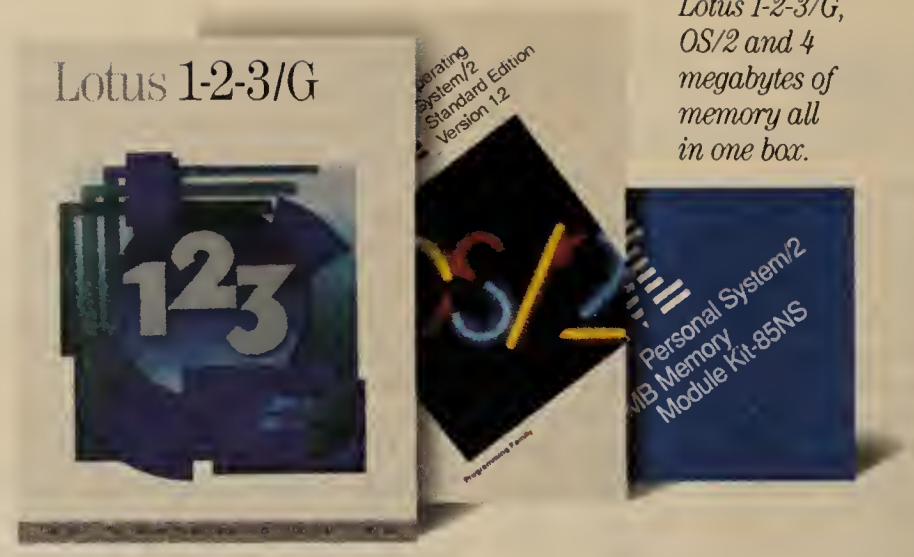
WY-160

Thanks to Lotus® and IBM,® you now have an opportunity, as well as a reason, to move to OS/2.®

The opportunity? For one incredibly low price we'll not only give you OS/2, we'll also give you four megabytes of memory to make use of all its speed and power.

And to make it all worthwhile? You guessed it. Lotus 1-2-3/G.™ The spreadsheet that's so easy to use, and so exciting, PC World called it "a new high in spreadsheet technology."

Now one of the best reasons to get on a computer in the first place is the best reason to upgrade to OS/2.



Lotus 1-2-3/G, OS/2 and 4 megabytes of memory all in one box.

How To Get Everything You Need To Run OS/2 And Why You Should Even Bother.

The best part is that all of these things are available in one box. Under one roof (your local participating IBM authorized dealer). But only for a short time (from June 5th through August 31st). And at a price so attractive, you could wind up saving as much as $2000.

That information alone should get you to leap off the fence and dash out to buy a 1-2-3/G Bonus Pack.

But for those of you who might not be ready to make the leap to OS/2, may we offer you some more reasons why you should?

Save a couple of grand when you buy them all together.

First of all, if you're a 1-2-3® user, 1-2-3/G will feel familiar, with menu commands and keystrokes you already know. But look a little closer. You'll begin to notice a lot that's new. Like full mouse support. Pull down menus. And dialog boxes. There's even a WYSIWYG display. And that's just the beginning.

We've also added features like previews and palettes in dialog boxes, dramatic new graphing capabilities and the capacity to directly move objects on the screen, making 1-2-3/G extremely responsive to the way you work.

The more you get to know 1-2-3/G, the more you'll like it. The advanced functionality helps you do better business analysis, with bonuses like file linking, network support, true 3D worksheets, and the new advanced goal-seeking technology of Solver.

Solver helps you solve complex "what if" problems by showing you "how to" achieve desired results. Rather than going through a lengthy trial-and-error process, just ask Solver to present you with alternatives, given whatever variables or constraints you define in your spreadsheet. It will not only give you a choice of solutions but will also point out the optimal one.

IBM

If you're a current 1-2-3 user, you'll be happy to know that all data and macros created in existing versions of 1-2-3 can be retrieved directly into 1-2-3/G. So a move to OS/2 will only serve to enhance any investment you may have already made in 1-2-3.

But how does OS/2 make 1-2-3 better? Well, besides introducing 1-2-3 to a graphical environment, OS/2 works harder and faster, so 1-2-3 can work harder and faster for you.

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With OS/2, 1-2-3/G can give you Dynamic Data Exchange. DDE provides live links to other Presentation Manager™ applications for true application integration.

For example, you can include a graph from 1-2-3 in a word processor document. And when the data in your graph changes, the word processor document will automatically be updated as well.

What's more, we've made sure 1-2-3/G complies with IBM Systems Application Architecture. Which not only makes its interface consistent with other PM applications, but also means that once you know how to use 1-2-3/G, you'll be able to learn other PM products more rapidly.

OS/2

At this point, you're probably thinking, "Enough, I'm convinced." But just in case, we'd like to bring you up to date on OS/2.

OS/2 1.2 is better than ever. And before long, no one will be without it. It's more than just a graphical environment for the PC. Or an operating system for a handful of power users. It's a high performance, easy to use operating system that provides increased memory addressability and true multitasking.

4 megabytes of memory will give you plenty of room to operate OS/2.

Multitasking in OS/2 lets you get your job done more efficiently by allowing you to work with several applications at once, or even perform several functions at once. Instead of having to end one program before retrieving another, you can open as many OS/2 windows as you need, in any size. And not only view them concurrently, but also transfer data among them. You can also do things like print a spreadsheet and run Solver at the same time.

Plus, with a capacity of up to 16Mb of real memory, you can run larger, complex programs concurrently. And reliably. That means your computer is more efficient for you, not just more fun.

If you're worried that a move to OS/2 will mean sacrificing the investment you've made in DOS-based applications, this should put your mind at rest: The DOS compatibility mode in OS/2 allows you to run most of the existing DOS-based programs you already own. Which means the transition to OS/2 involves great gain, without any pain.

And don't think for a minute that we've forgotten about memory. We understand that the biggest obstacle to expanding your system's capabilities is the expense of expanding your memory. That's why we've included 4Mb of high quality, IBM memory in our Bonus Pack. If you're a PS/2® user, it's all you need to get up and running with OS/2 and OS/2 applications like 1-2-3/G.

OS/2

Now you've heard the whole story. The computer environment of the nineties is here. With an application to drive it right off the shelves. So don't waste any time. Call 1-800-447-4700 for the local participating IBM authorized dealer near you. And pick up the Lotus 1-2-3/G Bonus Pack, with OS/2 and four megabytes of memory, while you have the chance. After all, while the window of opportunity may be brief, IBM and Lotus have opened the door to the future.

Lotus

Hurry to your local participating IBM authorized dealer. This offer won't last long.

Offer good through local participating IBM authorized dealers. Offer expires August 31, 1990.

The Lotus 1-2-3/G Bonus Pack

and Presentation Manager is a trademark of International Business Machines Corporation.

Apple

FROM PAGE 31

was just beginning to market its Postscript application. Postscript allows users to accurately print the text and graphics they display on their screens.

Apple became Adobe's first OEM, and both firms were out of the blocks quickly in the desktop publishing market. "The Macintosh interface and Adobe's Postscript made a terrific system," Auster said. "It was a marriage made in heaven."

Trouble was, Adobe knew it had a good thing and began licensing Postscript widely. Printer makers began focusing on the popular Macintosh environment, and it has been a struggle for Apple ever since.

Apple's two new introductions in the embattled niche are aimed at both single users and small work groups. The $1,999 Personal Laserwriter SC is designed for individuals requiring basic text and graphics, while the $3,299 Personal Laserwriter NT is aimed at larger groups with more sophisticated needs, Apple officials said. The SC will use Quickdraw graphics routines while the NT employs Postscript software.

Both machines will incorporate the Motorola, Inc. 68000 microprocessor. The SC includes 1M byte of random-access memory — the amount needed for imaging a full page of text and graphics at 300 dot/in. resolution — while the NT offers 2M bytes of RAM.

"There was some question as to how committed we are to the printer market, but this announcement should answer that," product line manager Duane Schulz said.

While the iron's hot

Competitors are striking back fast. During the same week as the Apple introductions, Mobile, Ala.-based QMS moved quickly to steal some of its thunder with the rollout of the QMS-PS, a Postscript-based laser printer that will retail for $2,795.

HP, too, will continue to pose a tough competitive threat, being the only competitor with the resources and reputation to take on Apple's marketing clout. Last February, for example, HP announced Macintosh compatibility for their Laserjet printers.

"No one in this area is sitting still," Auster added. "It's going to be a tough market."

Rallying around Lady Liberty

Callers define meaning of freedom to support Statue of Liberty museum

BY SALLY CUSACK
CW STAFF

NEW YORK — A $15 donation and some basic computer technology will allow people from all over the world to participate in "A Call for Liberty," a program initiated earlier this month to benefit the Statue of Liberty museum on Liberty Island.

By dialing a toll-free phone number, a caller can permanently record his personal sentiments on the meaning of liberty in an electronic thesaurus.

Each caller will reach an operator who, in exchange for a credit-card number, will transcribe the message into a computer database. The database will become an electronic thesaurus and a component of the museum.

The thesaurus resides on AT&T's 6386/25 Workgroup Systems, which were donated by the vendor for the project. The software system itself was designed by AT&T Bell Laboratories.

According to Barbara Wheeler, a project leader at AT&T Bell Labs, visitors access messages by entering an individual country or person's last name. They can also read all of the recorded messages via a search function.

Statue of Liberty *goes online with America*

"The system has been customized for this application," Wheeler said. "For example, the function keys have been made inoperable, and the keyboard has been color-coded for ease of use."

Simple functions

The specialized software was developed with Nantucket Software Corp.'s compiler Clipper and incorporates menus for easy query and read functions.

There are two telephones located adjacent to the computer systems at the museum, and by pushing a single button, a visitor can reach a telemarketing data operator.

The operator takes the message, which cannot exceed 50 words, stores it and updates it in batch mode. The project relies on Clyde Digital Systems' Carbon Copy for remote system and registration updating, according to Wheeler.

The program is the brainchild of George M. White, the architect of the Capitol, who is heading a grass-roots campaign to raise money for the museum and its outreach programs.

NEW PRODUCTS

Development tools

Meta Software Corp. has released a version of Design/IDEF that is compatible with Microsoft Corp.'s Windows 3.0.

The product is a computer-aided system modeling tool that supports and automates IDEF activity and data models. Its features include work-group support, rearrangeable hierarchies, automatic box creation, an integrated data dictionary, arrow routing, level balancing as well as consistency.

The product runs on MS-DOS/Windows and the Apple Computer, Inc. Macintosh operating system. It costs $2,995.

Meta Software
150 Cambridge Park Drive
Cambridge, Mass. 02140
(617) 576-6920

Integrated Computer Solutions, Inc. has unveiled the Builder Xcessory, an interactive, paint-like software tool designed for prototyping, building and testing the Open Software Foundation's Motif graphical user interface for X Window System.

Users of the tool are able to construct complex Motif user interfaces by clicking icons and moving them within the interface. No compiling is necessary to test or modify the interface, the vendor said.

Builder Xcessory can run on platforms such as Sun Microsystems, Inc. workstations and Digital Equipment Corp. Decstations running Ultrix. The product is priced at $2,500.

ICS
163 Harvard St.
Cambridge, Mass. 02139
(617) 547-0510

Systems

Boss Technology has announced the Boss 386SX 20-MHz desktop personal computer.

A basic configuration comprises an Intel Corp. 80386SX 20-MHz motherboard in a bay king case with a 200W power supply; a 101-key keyboard; a 1.2M- or 1.44M-byte floppy disk drive; two serial, one parallel and one game port; and 1M byte of memory.

It is available with a rapid-access 40M-byte hard drive for a list price of $1,995.

Boss Technology
6050 McDonough Drive
Norcross, Ga. 30093
(404) 368-2077

Veridata Electronics, Inc. has announced a laptop that operates at 16- or 8-MHz clock speeds.

The Lappower 286/40 is equipped with 1M byte of random-access memory and a black-and-white backlit IBM Video Graphics Array screen that provides 640- by 480-pixel resolution. It also features a 16-color graphics capability that produces a 32-level gray scale.

The product operates under MS-DOS 3.3 or higher, OS/2, Dr. DOS or Xenix. It is priced at $3,150.

Veridata
11901 Goldring Road
Arcadia, Calif. 91006
(818) 303-0613

Veridata's laptop *offers 16-color graphics capability*

Software applications packages

Kital Software has introduced Version 2.0 of its Super Macros Library for Lotus Development Corp.'s 1-2-3 spreadsheet.

The product contains two Macro Library Managers that use the Macromgr.Adn add-in supplied by 1-2-3 Release 2.2. More than 200 *.WK1 macros and 200 *.MLB library macros are offered.

System requirements include an IBM Personal Computer AT or XT, Personal System/2 or compatible and Lotus' 1-2-3 Release 2.0 or higher. A hard disk is also recommended.

The package is available for $70, and upgrades to earlier versions cost $25.

Kital Software
P. O. Box 748
Karmiel 20100
Israel
(972) 498-7255

Unix software

Terry Keene, Inc. has announced the availability of five versions of Menumagic, its Unix system interface.

The product is offered for The Santa Cruz Operation's (SCO) Unix System V 386, Release 3.2; Interactive Systems Corp.'s 386/ix; Intel Corp.'s Unix System V/38, Release 3.2; AT&T's Unix System V/386, Release 3.2; and IBM's AIX for Personal System/2, which was developed in conjunction with Dickens Data Systems.

Menumagic features more than 120 library functions. It also includes a developer's tool kit for creating custom library functions.

Pricing is $495 for all Unix versions, and an SCO Xenix version costs $345.

Terry Keene
P.O. Box 2049
Roswell, Ga. 30077
(404) 640-1515

Which leading company has developed the last branch automation systems you'll ever need to buy?

COMMENTARY

Jeffrey N. Fritz

Assume nothing

It's time for communications software to grow up. It is often presumed that basic functionality is pretty much the same from package to package. This assumption is not nearly as correct as it may seem.

Until very recently, our department selected communications software based largely on a cost vs. features analysis. We supposed that the major software vendors had basics such as file-transfer protocols and terminal emulation down pat.

However, there are subtle but very important differences among the communications packages available for personal computers. Sometimes even a small difference can result in major problems.

For example, most packages support common file-transfer protocols. However, the ability to configure these protocols is not always the same. For that matter, a protocol in one package may not be as robust as the same protocol in another package.

A case in point is the Kermit protocol developed by Columbia University and named in honor of that renowned Muppet character. Kermit is one of the most

Continued on page 42

Foxboro sidetracks standards

Manufacturing firm chooses Sun's NFS for global communications

BY ELISABETH HORWITT
CW STAFF

FOXBORO, Mass. — Rather than wait for industry standards to mature, The Foxboro Co. recently decided to use Sun Microsystems, Inc.'s Network File System (NFS) as the basis for information and resource sharing across its global, multivendor distributed network.

The manufacturer is currently about halfway through the initial stage of a project to implement PC-NFS at all of its major global sites. The objective is effortless communication and information sharing across geographically dispersed sites and key work areas such as field services, manufacturing, industry engineering, research, design and sales, said John Puckett, Foxboro's manager of technical operations.

One major goal of the project is to "create library-type systems" that make designs and applications "available to the whole engineering community, not just the U.S.," Puckett said. The intent is to "create a high level of efficiency, quality and consistency through reusable engineering," Puckett added.

Puckett *is working to communicate effortlessly*

"The key is to stop reinventing the wheel, to share not just product designs but applications, such as graphics, that are built for a particular refinery or customer," he said.

Foxboro chose Sun's PC-NFS primarily for its ability to support Foxboro's large installed base of MS-DOS-based microcomputers and a growing installation of Unix-based workstations from Sun, Digital Equipment Corp. and Hewlett-Packard Co., Puckett said. The only Foxboro systems that NFS does not currently support are HP MPE hosts and certain factory automation systems, he added.

Having recently decided to migrate to a multivendor Unix environment, Foxboro's "initial thrust was to bring our PC environment up to the same level of connectivity" as that of its Unix machines, Puckett said.

Foxboro has approximately 1,000 personal computers on Ethernet local-area networks. Formerly it used 3Com Corp.'s Ethershare software to access files on 15 servers running DEC's Ultrix. The company is approximately halfway through its effort to migrate the PC LANs to PC-NFS, with gateways providing connections to a handful of Novell, Inc. Netware and Apple Computer, Inc. Appletalk users.

PC-NFS has provided users with the ability to access files without worrying which vendor's platform the server runs on or whether it is located next door or overseas, Puckett said. Sun's Lifeline electronic mail package is said to exchange files with other Unix-based mail systems as well as HP Desk.

Continued on page 44

Extensions to LU6.2 take wide Spectrum

BY ELLIS BOOKER
CW STAFF

NEW YORK — Spectrum Concepts, Inc. recently extended its LU6.2-based communications tool to provide data transfer between applications on a transaction-by-transaction basis.

While LU6.2 is a well-documented protocol for connecting applications across a Systems Network Architecture (SNA) network, Spectrum's software "shelters users from having to program these communications," marketing manager Mitch Davis said.

Since 1987, Spectrum has been selling XCOM 6.2, a bulk data transfer product using the LU6.2 scheme; the company claimed about 250 company installations for this product.

The software, Transaction Processing Manager (XCOM-TPM), acts as a go-between for applications running on two or more computers: Transactions are handed off to XCOM-TPM, which then passes them across the SNA network to other computers for processing. As communications subsystems, XCOM and XCOM-TPM mean that the original program need not know how the data transfer is accomplished, but it can receive information about the status of the transfer, Spectrum said.

Spectrum added that XCOM-TPM is targeted at transaction-oriented applications, including stock quotations, credit authorizations and ticket reservations.

Like the original bulk-transfer product, XCOM-TPM will support MVS and VM mainframes, IBM and Digital Equipment Corp. midrange systems, DOS, OS/2 and Apple Computer, Inc. Macintosh personal computers and Unix workstations. Also, like its predecessor, XCOM-TMP offers programmers a choice of menu, command line or application programming interfaces.

Spectrum said XCOM-TPM has entered beta testing and will be available in the fourth quarter. Although pricing has not been finalized, company officials said the server and workstation implementations will be priced from $35,000 to $70,000.

Who created these products to fit virtually any environment, be it UNIX- or MS-DOS-based?

Here's a hint: It's not IBM.

Research joins hands with progress

Public Health Service links agencies by E-mail to speed disease research

ON SITE

BY JOANIE M. WEXLER
CW STAFF

Using automation to improve productivity is generally viewed in the context of boosting the bottom line through cost cutting or better customer service.

The U.S. Public Health Service, however, hopes that connecting its agencies' disparate electronic mail systems will also speed progress toward finding cures for diseases such as acquired immune deficiency syndrome and bringing needed drugs to market.

The Public Health Service, which falls under the Department of Health and Human Services umbrella, is the parent of nine discrete agencies.

Public Health Service and its agencies are supported by 11 mainframes, more than 600 minicomputers and 17,000 personal computers all running on different hardware platforms.

The department is currently implementing software from Softswitch, Inc. on IBM host hubs to allow a slew of proprietary electronic mail systems to intercommunicate.

Peter Alterman, senior management analyst at the Public Health Service in Rockville, Md., commented that the administrative benefits of interagency E-mail pale in comparison to the more socially redeeming benefits of sharing the "real work" generated by researchers.

He said, "The people at the National Institutes of Health are doing AIDS research; the Centers for Disease Control are doing AIDS epidemiology, and the FDA [Food and Drug Administration] is doing AIDS drug reviews. Bringing these efforts together is where there's a real benefit in data connectivity."

He added, though, that "it's nice for me to be able to get a strategic plan downtown in eight minutes instead of four days."

The hub mail software, called Softswitch Central, converts standard electronic mail protocols, including X.400 and Simple Mail Transfer Protocol, into the E-mail format of the receiving network.

If the sending network does not use a standard E-mail protocol, a gateway must sit on the sending network to convert from the proprietary format — say, Wang Office — to a neutral format. Softswitch Central then converts that neutral format into the receiving E-mail format and sends the message on its way.

The agencies run proprietary E-mail systems such as Wang Laboratories, Inc.'s Wang Office, Digital Equipment Corp.'s All-In-1, 3Com Corp.'s 3+Mail and Banyan Systems, Inc.'s Vines Mail.

Some of the E-mail exchange takes place over a wide-area leased-line network, which consists primarily of T1 links reaching from a central hub in Rockville to 10 regional offices.

Public Health's *Alterman appreciates E-mail*

Alterman said that the Public Health Services identified a need two years ago for data connectivity among the jumble of offices and spent about nine months discussing options.

"We decided the first strategic step should be electronic mail. E-mail is to networking what the word processor is to the PC: the application that makes sense," he said.

Alterman added that the department measures productivity gains in time, not money, since as a government entity, "we'll never have enough people and dollars to get the job done." He estimates, though, that E-mail is on average chopping three working days off "any communications-related activity."

Alterman said the department is also planning to expand the system to allow drug companies to electronically forward their mounds of new-drug documentation to the FDA for approval.

The department is installing X.400 gateways in a couple of computer centers to comply with the government mandate that all procurements after Aug. 15 must be compatible with Open Systems Interconnect (OSI) standards.

Alterman explained that new procurements must only include the capability to communicate via OSI protocols. "I could still buy another 3+Mail package, but I'd also have to buy a 3+Mail/X.400 gateway or make sure my new system had access to such a gateway."

Fritz

FROM PAGE 41

popular and common protocols in use today. However, Kermit's performance over packet networks can be poor. In recent tests, Kermit managed a throughput of only 1.3K bit/ sec. over a 9.6K bit/sec. digital link.

This gross inefficiency isn't entirely Kermit's fault. It has a lot to do with the typically small size of Kermit packets, which tends to conflict with the size of packets provided by the digital links. This means increased overhead and lowered efficiency. Some programs give the user flexibility in selecting the packet size that Kermit uses. However, most communications packages limit the maximum packet size to less than 100 bytes.

If the packet sizes handled by Kermit approach 2K bytes, the time it takes to transfer large files is dramatically reduced. For example, a 260K-byte Kermit file transfer to an IBM host over Datastorm's Procomm Plus took nearly 30 minutes. The same Kermit file transfer to the same host took less than five minutes using Synergy's Versaterm Pro. The only difference was that both Versaterm Pro and the mainframe software were set to use a 1,910-byte packet. Procomm Plus, however, limited the maximum packet size to 94 bytes.

If Kermit is one of the most popular file-transfer protocols, then Digital Equipment Corp.'s VT-100 is certainly one of the most popular terminal emulations.

> IF KERMIT IS one of the most popular file-transfer protocols, then Digital Equipment Corp.'s VT-100 is certainly one of the most popular terminal emulations.

Even when the host is an IBM mainframe, the emulation of choice is very often VT-100. In fact, nearly every communications package contains a VT-100 emulator. Unfortunately, not all do the same job emulating this popular terminal.

Our department regularly accesses a local telephone company database called Macstar. This database displays a screen that allows entry of specific features on any one of the university's 4,900 telephone lines.

There is nothing magical about Macstar. It expects to connect to something that looks like a VT-100 terminal. However, not every software package understands the nuances of character codes used by the VT-100. Only one tested package, Crosstalk by Digital Communications Associates, allowed our operators to enter all the characters in Macstar's data fields.

Most users do not have much of a preference for data format. After all, there is nothing inherently better about eight bits no parity over seven bits even parity. However, software packages can have substantial preferences. In fact, some popular packages cannot handle eight-bit parity correctly.

One package presented garbage at the log-in prompt whenever eight bits was selected, even though the host supported eight bits. A call to the vendor's technical support line resulted in a meek admission that "some other packages do handle eight-bit data a little better than us." There was no indication if a fix was available or even in the offing.

Communications tasks are becoming more sophisticated and demanding. What is needed today is not extra bells and whistles in communications software. Most users do not need the additional confusion of yet another protocol with only an extra letter to differentiate it from its predecessor. Much more important are reliable, flexible packages with robust protocols and accurate terminal emulations. Once commercial packages can handle the basics, selections can be made based on features and cost and not on simple operability.

Fritz is a data communications analyst at West Virginia University in Morgantown, W. Va.

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3Com offers extended warranties

BY JIM NASH
CW STAFF

SANTA CLARA, Calif. — 3Com Corp. has extended the automatic three-year warranties on its Etherlink adapter product line to limited lifetime policies.

The Santa Clara-based networking firm announced on July 23 that defective adapters that have been sold since June 1, 1990, will be repaired or replaced for free as long as they remain in their original personal computers.

All adapters will continue to have a three-year warranty from the date of purchase regardless of whether they are removed from their original equipment.

Returning completed three-year warranty slips to 3Com automatically extends the time limits to lifetime warranties.

The policies apply to equipment sold by original equipment manufacturers, value-added resellers, company dealers and distributors.

3Com officials claimed that Etherlink adapters average 70 years between failures.

The company manufactures adapters for IBM Personal Computers and Personal System/2s as well as Apple Computer, Inc. Macintoshes.

It has two adapters for 10BASE-T equipment.

Businesses urge first global EDI user group

BY JIM NASH
CW STAFF

SAN FRANCISCO — A group of Canadian businessmen recently proposed what they claimed would be the first international electronic data interchange (EDI) group comprised solely of users, an idea that has drawn mixed reviews.

The Chamber of Commerce of Metropolitan Montreal and the EDI Council of Canada announced the formation of a multinational working group of EDI users. The 13-member group is to define issues, roles and priorities for what would become the International EDI Institute.

Representatives of both groups at the Second International Congress of EDI Users said a study they funded indicated a global user group is necessary to focus attention on EDI and its implementation and distribution worldwide.

The institute, said Marshall Spence, president of the EDI Council of Canada, would become an arbiter of EDI issues. Spence said he foresees it as one way to organize international support among government agencies, universities and private firms. He said the institute also would focus on North-South problems of technology implementation and diffusion.

"The idea in general is OK," said Bruce Haney, telecommunications systems engineer at Upjohn Co. in Kalamazoo, Mich. He said it would be most useful if it did not "get bogged down in philosophical debates" about EDI standards.

Decisions, decisions

Hank Granse, IS director at the Port of Tacoma, said, "If [the institute] can function and have some power, then it's a good thing. We have so many user groups that we have to be rather selective with what we belong to."

Spence said the 13-member working group will convene for two sessions this fall to discuss specific needs and goals for the institute. The 13 will be drawn from 10 regions, including the U.S., Canada, Western and Eastern Europe, South America and the Pacific Rim. Representatives are expected to be chosen by existing groups in each of the regions.

Jerry Dreyer, president and chief executive officer of the Electronic Data Interchange Association in Alexandria, Va., said the working group's schedule was too ambitious. He questioned the group's ability to crystallize the pertinent issues, consult their constituencies and make lasting decisions.

International EDI users were generally more positive. Ariovaldo Pesse, a representative of Colgate-Palmolive Ltda. in Vila Mariana, Brazil, said, "If you never try, you never arrive."

An Easylink to Pacific Rim

BY ALAN J. RYAN
CW STAFF

UPPER SADDLE RIVER, N.J. — Just one week after announcing earlier this month that its Business Services unit would be sold to AT&T, Western Union Corp. expanded the unit's Easylink electronic mail function to both South Korea and Taiwan.

Sal Noto, director of international marketing planning at Western Union, said that business at the company is continuing as usual. "We have been told not to change anything until the closing" of the sale to AT&T, he said.

According to Steven Graham, vice-president of marketing for Business Services, Western Union employees appear to be optimistic about the AT&T buyout of the unit. "If you look at global business — messaging and the opportunities that exist in the decade of the '90s — the alliance makes one heck of a lot of sense," Graham said.

Extending Easylink

The activities required to bring Easylink to the Pacific Rim — the service is also available in Japan — had been under way for months, and the contracts had been signed prior to the announcement that AT&T would purchase Western Union's Business Services [CW, July 9], according to Noto.

Noto said that the expansion of Easylink will be beneficial to existing Easylink customers.

Western Union has appointed local distributors to facilitate the use of Easylink messaging services to multinational companies doing business in the Pacific Rim.

The distributors will allow both local and multinational companies and U.S. multinationals in the Pacific Rim region to receive support for Easylink services from a nearby source, according to Western Union.

Until the sale of Business Services to AT&T is completed, Noto explained, he will continue to refine the globalization plan he has set for Western Union's Easylink.

When Easylink becomes AT&T property, Noto said, he will present his plan to AT&T "to see if they want to keep it along the same lines, modify it, or say, 'we have one of our own.' "

"I HAVE TO FREE $750,000 FROM MY DATA CENTER BUDGET NOW..."

A USER'S CHALLENGE:

The director of computer operations at one of the nation's best-known on-line service companies had a serious problem last Fall. He had production-crippling paging problems, degrading response times on 1,000 3270 PCs, and a mandate to update five mainstream applications. He had enough budget to upgrade his System/3090 Model 200 to a 300E, but was still $750,000 short of his needs. His quick solution: STOR/9000 central and expanded memory from Cambex. He replaced and doubled original memory with Cambex STOR/9000 memory and had his answers: no paging problems; 3270s that fly; development going full blast. Once it's installed, users don't think about Cambex memory. They only think about the opportunities it gives them. Ask your Cambex sales representative for more information about this customer.

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INTERNATIONAL BRIEFS

Sprint to build USSR video link

U.S. Sprint Communications Co. has signed an agreement to supply what it claims will be the USSR's first commercial, international videoconferencing system. Under an agreement between Sprint and the **Soviet Ministry of Communications**, the telecommunications carrier will provide a link between a newly constructed digital videoconferencing room in Moscow and its Meeting Channel videoconferencing service, which currently serves 26 countries. Multinational businesses, government agencies and other organizations will have access to the room's facilities.

Timeplex, Inc. has been selected by the **Taiwan Telecommunications Network Services Co. Ltd.** (TTN) to provide the T1 switches for Taiwan's first national data network. Timeplex will install Link/2+ T1 switches in 16 Taiwanese cities, providing a backbone to connect TTN customers' computers, personal computers and terminals. TTN is one of eight value-added network providers recently formed in Taiwan as part of the government's move to deregulate the nation's telecommunications industry.

BASF AG, a West German chemical company, has placed an order with **Northern Telecom, Inc.** for an integrated services digital network system based on the vendor's Meridian private branch exchange line. With more than 30,000 lines, the Meridian 1 network will be Germany's largest private communications network, Northern Telecom said.

British Telecom has announced the closing of its last old-style electromagnetic exchange, which is located in Thurso, Scotland. This will make the UK-based carrier's network entirely digital, British Telecom said.

Newbridge Networks, Inc. has received orders to install corporate voice/data networks in Korea. **Lucky Goldstar International Corp.**, a U.S.-based $6 billion trading company, has placed an order for Newbridge's 3600 Mainstreet Bandwidth Manager in Hong Kong, Los Angeles and Korea. **Daewoo Corp.**, a Korean trading firm and manufacturer of electronics and appliances, has signed up for Newbridge 3612 Mainstreet switches to link New York and Seoul, Korea, with plans to expand the network in North America and Asia in the future.

Japanese systems integrator **Intec, Inc.** has signed an agreement to distribute **Osiware, Inc.'s** Open Systems Interconnect software in Japan and internationally. Intec will distribute a version of Osiware's Messenger 400 that has been modified to support Japanese character sets. The electronic mail system is said to be based on the CCITT X.400 standard.

Stratus Computer, Inc. has announced the availability of **Simpler Trade Procedures Board's** (Sitpro) electronic data interchange (EDI) software on Stratus XA 2000 Continuous Processing computers. The agreement between Stratus and Sitpro, an independent agency sponsored by the United Kingdom Department of Trade and Industry, allows the use of XA 2000s as EDI gateways between trading partners around the world, Stratus said.

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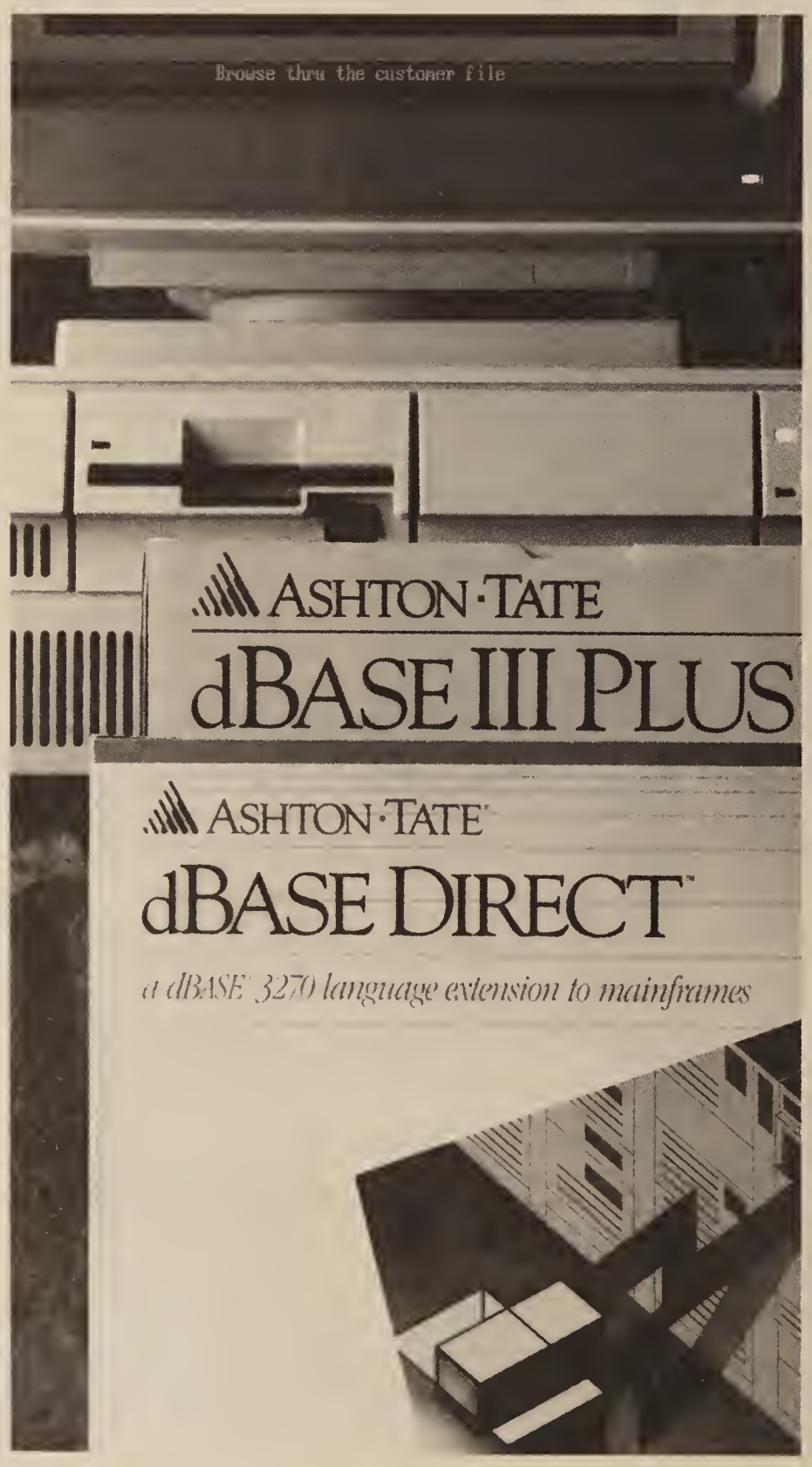

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Foxboro

CONTINUED FROM PAGE 41

Foxboro's underlying network protocol is Transmission Control Protocol/Internet Protocol. Physical links between global sites are based on the X.25 packet-switching protocols, Puckett said.

A Design for Manufacturability project now under way at Foxboro uses PC-NFS as a "common thread between workstations," allowing users in design, engineering and manufacturing to access and update the same databases, Puckett said. The fruit of the project will be a prototype that will be modeled after other Foxboro manufacturing sites around the world for possible implementation, he added.

While Foxboro's initial implementations of PC-NFS will not make use of Sun's Remote Procedure Call (RPC), the distributed computing tool "will obviously play an important role for us down the road," Puckett said.

Foxboro plans to implement a system within the next 12 months based on Sun's RPC that will automatically search databases for computer-aided design files and other data needed to build a particular product, Puckett said. Today, users on the shop floor must build such requests and enter them manually, he added.

Incompatibilities between Sun's RPC and the Open Software Foundation's (OSF) Distributed Computing Environment are not a major concern at Foxboro — for the moment, at least. The firm is "committed to standards," but only when they become "commercially viable from a corporate standpoint," Puckett said. "We have needs and an installed base today," whereas organizations such as the International Standards Organization, OSF and Unix International "promise standards for tomorrow," but offer specifications that are still in a state of flux, he added.

For the near term, Puckett said, Foxboro can integrate its Sun-based implementation with OSF's standard via PC-NFS, which the OSF has endorsed.

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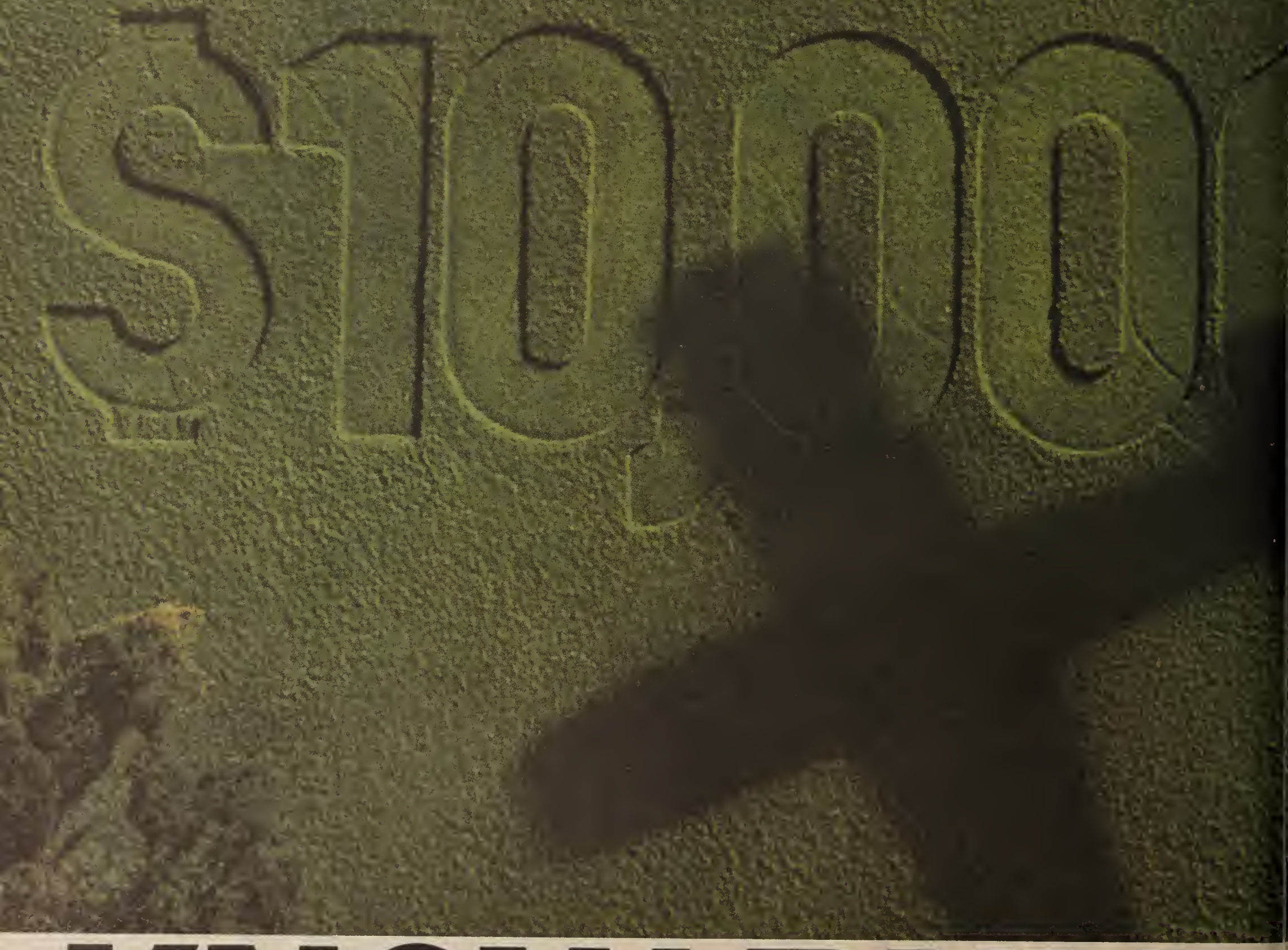

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Technology

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3 DPS 6 midrange systems

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FDDI: Concentrating on cost

Previous claims of FDDI concentrator cost savings come under scrutiny

ANALYSIS

BY JOANIE M. WEXLER
CW STAFF

Now that Fiber Distributed Data Interface (FDDI) concentrators are hitting the shelves, age-old prophecies that such products will slash network connection costs and fuel the market are under scrutiny.

An intelligent device that connects to an FDDI local-area network, an FDDI concentrator hooks workstations in a star configuration to the 100M bit/sec. fiber ring, much the way a terminal server links personal computers and terminals to an Ethernet or Token-Ring network.

A report last year from market research firm International Data Corp. (IDC) suggested that the high price per connection to an FDDI LAN — now about $11,000 and prohibitively high for many user companies — would be less of an inhibitor once concentrator products appeared on the scene.

However, prices still may not be low enough for commercial users. In fact, the author of the IDC report, Rick Villars, manager of computer networking systems, cited "the protection of the network rather than cost savings" as the main advantage to using a concentrator.

Digital Equipment Corp.'s FDDI product rollout this month included an eight-port, $15,000 concentrator, which, when coupled with the vendor's $6,000 FDDI network adapter card needed for each workstation, gets the per-port cost down to about $8,000.

Timeplex, Inc. introduced a $30,700, eight-port FDDI concentrator in January. The DEC and Timeplex products dual-attach to the backbone to protect the inherent redundancy afforded by FDDI's dual, counterrotating ring topology.

However, Timeplex's concentrator cost nudges $4,000 per port and still requires an FDDI adapter card for each attached workstation ($6,000 to $10,000, according to IDC). These are hefty price tags for users accustomed to hooking their computers to an Ethernet network with a $200 adapter card. In addition, some high-performance workstations are now $4,000 to $5,000 — half the price of an FDDI connection.

There is still progress being made to cut connection costs, however. This week, two working groups formed at last month's FDDI standards committee meeting will convene in Boston to explore less expensive

means to FDDI's high data transmission rates. One group will consider a new component to the FDDI standard specifying shorter distances between nodes in concentrator configurations, according to Bruce McClure, the group's chairman.

McClure, who is also chairman of FDDI start-up Synernetics, Inc. in North Billerica, Mass., said his group will discuss reducing the concentrator-to-station distance from 2km to 100m, which would ease performance requirements for products and possibly lower the cost to users by 30% to 40%.

In the meantime, users and analysts are touting other concentrator benefits — enhanced network management, wiring flexibility and protection of the FDDI backbone — as more germane to network concerns than cost savings.

"The dual ring is important for the backbone, but the concentrator will let us transparently reconfigure our network without having to pull new runs," commented Warren Fugate, director of systems and networks at the University of Pittsburgh. Fugate has been beta testing DEC's FDDI product line and said he "certainly intends to buy" the Decconcentrator 500, which, like Timeplex's Time/LAN FDDI Concentrator+, accommodates single-attached workstations only.

Different thoughts

Opinions vary about the benefits of single-attached vs. dual-attached workstations. Single-attached workstations, which run just one pair of fiber wires to the concentrator, require less intelligence on their FDDI network adapter cards — rendering the cards less expensive — and reduce the amount of fiber cabling needed.

However, the number of fiber-optic connections involved in concentrator configurations is, ironically, greater. While only one fiber-optic connection is required on the workstation side, a counterpart connection is required on the concentrator, and an additional two connections are required from the concentrator to the dual ring.

The single-attached workstation approach also does not take advantage of the full redundancy capabilities inherent in the dual-ring concept of FDDI. If a cable running to the single-attached workstation breaks, that node is out of commission. In a dual-attachment scenario — advocated by such workstation vendors as Hewlett-Packard Co.'s Apollo division, Prime Computer, Inc. and Silicon Graphics, Inc. — the workstations would be backed up by the secondary ring.

One problem with using all dual-ring attachments without a concentrator is that if there is a fiber cut on the active ring, the network will default to the backup ring, wrap and "self-heal." If two devices malfunction, the two wraps would isolate a section of the backbone from the rest of the network, pointed out Mark Leary, director of communications and networking research at Technology Investment Strategies Corp. in Framingham, Mass. A concentrator, on the other hand, allows the ring to bypass the malfunctioning node.

NEW PRODUCTS

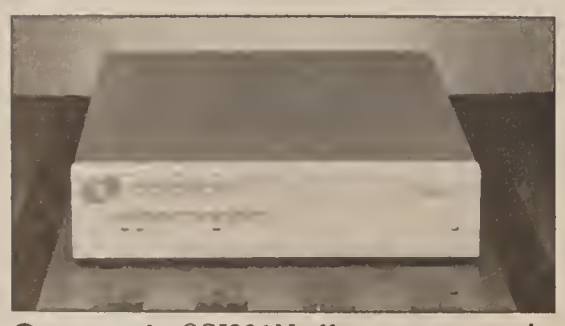
Network management

Isicad, Inc. has introduced a stand-alone software package designed for IBM Personal Computer XTs, ATs and compatibles.

Command 2000 can be used throughout network design, installation and change management processes. It features help desk and troubleshooting capabilities and a graphics-to-database link that ties graphical data to a nonproprietary relational database system.

The package is available for $12,950.

Isicad
1920 W. Corporate Way
Anaheim, Calif. 92803
(714) 533-8910



Octocom's *OSI821N offers access security*

Octocom Systems, Inc. has introduced the OSI821N Desktop Access Security and Network Management System.

The system allows network managers to surveil and control dial and two- or four-wire leased-line data networks from a desktop. Features include a menu of event and alarm monitoring and logging capabilities, device configuration and control, four levels of host access security and a system log that provides an audit trail of network activity, alerts and alarms.

OSI821N is priced at $3,200; a personal computer software license costs $500.

Octocom
255 Ballardvale St.
Wilmington, Mass. 01887
(508) 658-6050

Triticom has announced an Ethernet real-time traffic monitoring tool that was designed to operate with any Ethernet local-area network.

Ethervision enables network managers to monitor traffic and errors in real time, display network usage and assign user names to network addresses.

The product was designed to operate with Novell, Inc.'s NE2000 or a compatible Ethernet adapter. DOS Version 3.1 or higher is also required.

Single workstation versions that include a user manual and 3½- or 5¼-in. floppy disks sell for $225. Versions with Ethernet adapters cost $525.

Triticom
P.O. Box 11536
St. Paul, Minn. 55111
(612) 937-0772

Codex Corp. has introduced the 9110 Dial Monitoring System.

The system lets users monitor and control dial modem pools from a central site or through remote access. It supports up to 960 dial modems simultaneously and is available as a software kit or as a system equipped with a Hewlett-Packard Co. Vectra personal computer.

The 9110 is scheduled to ship in the third quarter. Pricing will be based on configuration and will begin at approximately $3,000.

Codex
20 Cabot Blvd.
Mansfield, Mass. 02048
(508) 261-4655

Microtronix Datacom Ltd. has announced a Digital Equipment Corp. VMS-based communications system designed for performing applications over wide-area networks.

The Packet Miser minimizes the cost of transferring packet-switched data over X.25 or public switched networks. The product enables users to communicate with VAX/VMS-based host processors without relying on network echoing to be performed by a host.

Pricing for the product begins at $4,500, depending on configuration.

Microtronix
125 Bessemer Road
London, Ont.
Canada N6E 1P9
(519) 681-3430

Group Technologies' *Glo-worm*

Links

Group Technologies Corp. has announced a digital encryption/decryption device that features modem, key management and remote user capabilities.

The Glo-worm can be connected to any computer equipped with an RS-232C interface. It transfers data at 9.6K bit/sec. and incorporates personal identification keys and remote user modules.

Glo-worm is priced at $2,995.

Group Technologies
10901 Malcolm
McKinley Drive
Tampa, Fla. 33612
(813) 972-6000

Pacer Software, Inc. has announced Pacer-Share, Pacer-Link and Pacer-Print.

Pacer-Share acts as an Apple Computer, Inc. Appleshare server that enables Apple Macintosh users to store files on a Digital Equipment Corp. Ultrix host. Pacer-Link is an integrated communication device for linking Macintosh and IBM Personal Computers to supported hosts. Pacer-Print is print server software that enables Macintosh and Unix users to print to Postscript-compatible printers.

Minimum license fees for Pacer-Share and Pacer-Link are $1,200. Pacer-Print prices start at $1,000 per VAX or reduced intruction set computing CPU.

Pacer
1900 W. Park Drive
Westboro, Mass. 01581
(508) 898-3300

Local-area networking hardware

Fresh Technology Group has announced a product that allows authorized users of Novell, Inc. Netware-based local-area networks to view the screen and operate the keyboard of a file server console from any workstation on a network.

Remote Console uses 2K bytes of server memory and is compatible with Netware 286 2.1 and later versions. It allows access to the console of a non-

dedicated file server even during DOS mode, the vendor said.

The product runs on an IBM Personal Computer XT, AT or compatible with DOS Version 2.0 or higher. It is priced at $249.

Fresh Technology
1478 N. Tech Blvd.
Gilbert, Ariz. 85234
(602) 497-4200

Intel Corp.'s Personal Computer Enhancement Operation has announced a compact print server designed for Novell, Inc. networks.

The Netport server enables users to locate printers by a direct connection to the network's wiring. It can simultaneously support two printers on a Novell Netware thin-wire Ethernet network, the vendor said.

The server is priced at $696 with a three-year warranty.

Intel
CO3-7
5200 N.E. Elam Young Pkwy.
Hillsboro, Ore. 97124
(503) 629-7354

Emerson Computer Power has announced a local-area network interface cable option designed to be used with its Accupower Model 40 and 50 uninterruptible power supplies (UPS).

The cable provides an intelligent link between the UPS and a LAN file server that can extend battery life during power outages.

The LAN interface option is priced at $179. Accupower Models 40 and 50 sell for $798 and $998, respectively.

Emerson Computer Power
P.O. Box 19786
15041 Bake Pkwy.
Irvine, Calif. 92713
(714) 380-1005

Gateways/Bridges/ Routers

Digital Equipment Corp. has announced a hardware and software routing product designed to find the most efficient paths for data to travel on a network.

The Decrouter 250 works within DEC's 802.3/Ethernet-based local-area network or between two LANs that are far apart. The product can operate with Decnet Phase IV networking software and with Decnet/OSI Phase V. The router provides both synchronous and asynchronous connectivity and supports eight lines at 19.2K bit/sec. or one line at 56K to 64K bit/sec., the vendor said.

Decrouter 250 is available for $6,000.

DEC
146 Main St.
Maynard, Mass. 01754
(800) 344-4825

The Software Group Ltd. has announced Netcom-Router, a local-area network/ wide-area network connectivity tool for users of Unix-based personal computers.

The product can reportedly link LANs using leased lines or packet-switched communications services at 64K bit/sec.

Netcom-Router was designed for Intel Corp. 80386-based computers running Unix or The Santa Cruz Operation SCO Xenix 386. It is priced at $600.

The Software Group
2 Director Court
Woodbridge, Ont.
Canada L4L 3Z5
(416) 856-0238

A 10-port multiprotocol Ethernet terminal server has been announced by Cisco Systems, Inc.

The STS-10x supports Transmission Control Protocol/Internet Protocol and Digital Equipment Corp.'s Local Area Transport (LAT) protocol. It features 256K bytes of read-only memory and a one-word connection method of linking users with appropriate protocols.

The product is priced at $2,995, and a LAT option costs $250.

Cisco Systems
1525 O'Brien Drive
Menlo Park, Calif. 94025
(415) 326-1941

Xyplex, Inc. has announced the Maxserver 6510 Remote Bridge Card, a product jointly developed with Vitalink Communications Corp.

The bridge improves interactive traffic among users at work group levels who need to access a host local-area network or corporate backbone network. The 6510 supports the IEEE 802.1D Spanning Tree Protocol and is compatible with Vitalink's Wan-manager network management system. It is scheduled to begin shipping in September for approximately $4,000.

Xyplex
330 Codman Hill Road
Boxboro, Mass. 01719
(508) 264-9900

Cabletron Systems, Inc. has introduced a repeater, bridge and analyzer module that merges analysis functions and network management capabilities into a single hub.

The Intelligent Repeater Bridging Module (IRBM) was designed to be integrated into Cabletron's Multi Media Access Center (MMAC) hub to connect 10M bit/sec. Ethernet local-area network segments, according to the company. It comprises an IEEE 802.3 repeater, an Ethernet bridge, LAN-analyzing technology and network management software onto a single card that fits into a slot in an MMAC Model 8 or Model 3 hub.

The IRBM module costs $6,500.

Cabletron
35 Industrial Way
Rochester, N.H. 03867
(603) 332-9400

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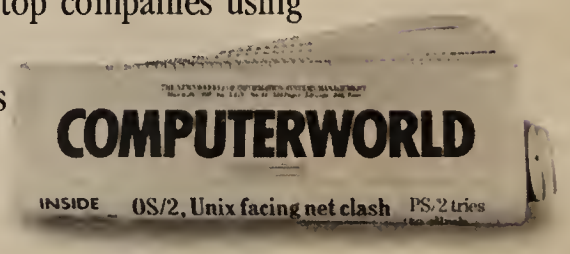

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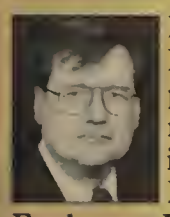

Nathan O. Lowell has been promoted to manager of MIS in the Buffalo, N.Y., office of **Exchange Insurance Co.**, a property and casualty insurance subsidiary of Niagara Exchange Corp.

Lowell joined Exchange Insurance in October 1989 as a systems analyst. Prior to that, he was a senior systems analyst at Bath Iron Works Corp. in Bath, Maine. He lives in Tonawanda, N.Y.

.....

John M. Granger has been named corporate vice-president of MIS at **Roundys, Inc.**, a food wholesaler in Pewaukee, Wis. He is responsible for the design, development and installation of all systems in Roundys' 12-state marketing area, with specific emphasis on retail support systems development.

Granger was most recently vice-president of MIS at Richfood Holdings, Inc. in Richmond, Va. Before that, he was vice-president of the information systems division for eight years at The Stop & Shop Cos. in Boston.

Granger reports directly to President and Chief Executive Officer John R. Dickson.

.....

B. Lynn DeLeo, director of benefits at Depository Trust Co. in New York, has been named president of the **Human Resources Information Management Society.** The New York-based society is a nonprofit association of approximately 600 human resource and IS professionals.

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Who's on the go?

Changing jobs? Promoting an assistant? Your peers want to know who is coming and going, and *Computerworld* wants to help by mentioning any IS job changes in Executive Track. When you have news about staff changes, be sure to drop a note and photo or have your public relations department write to Clinton Wilder, Senior Editor, Management, *Computerworld*, Box 9171, 375 Cochituate Road, Framingham, Mass. 01701-9171.

Restoring the personal touch

The hotel industry is attempting to balance automation with customer service

BY HELEN PIKE
SPECIAL TO CW

Who hasn't seen hotel clerks with their noses buried in terminal screens looking up only to ask for a credit card? And who hasn't disputed charges for phone calls that were never connected? Or worse, who hasn't been told his room is ready only to find the previous guest still there — sleeping?

That was the 1980s, an era in the hospitality business that saw development costs rise, buildings age and a growing gap between room availability and occupancy rates. There was a 40% increase in new hotel rooms that, in many areas of the country, could not be filled consistently.

Many hotels automated their accounting and reservations procedures during that time, hoping to streamline operations and boost efficiency. In the drive to computerize, something was often lost, however — the personal touch that can mean so much in building repeat business.

During the '90s, the lodging industry will be using information systems even more aggressively. However, it will also be trying to strike a better balance between cost efficiency and customer service.

IS executives are implementing new cost-control techniques for the back office, but these are complemented by and, in many instances, linked to ambitious red-carpet strategies to help put that personal touch back into operations.

The industry as a whole is readjusting the way it does business, says Larry Chervenak, a hotel consultant and president of Chervenak, Keane & Co. in New York. Hotels are using systems to simplify work, to improve the bottom line and to personalize attention to guests.

David Flaherty

Marriott Corp. in Bethesda, Md., a hotel and resort chain that operates more than 400 properties in the U.S., is regarded by many as a bellwether of the industry. A couple of years ago, Marriott executives decided to rethink the corporate statement.

They are now restructuring the organization, putting systems at the heart of it and adding a new emphasis: guest-focused employees empowered by technologies that enable a new level of personalized service.

Marriott's far-reaching corporate plan includes the following:

- A new human resources information system that will have the ability, among other functions, to help "associates" — as Marriott prefers to call its employees — with their career decisions if they decide to pursue a career in the hotel industry.
- A worldwide data network.
- A relational database of frequent Marriott guests.
- A new property management system that will encompass check-in and check-out, food and beverage, sales, catering and accounting.
- New IS tools developed through a joint venture called Confirm Central Reservation System, whose partners include American Airlines' AMR Travel Services, Hilton Hotels Corp. and Budget Rent-A-Car.

These plans attest to Marriott's emphasis on balanced integration of customer service and efficient operation. "We used to be focused on cost savings. Now we're most interested in improving service and making smarter decisions," says Charles L'Esperance, IS vice-president at Marriott.

One example is a recently implemented Guest Recognition System, which provides information that can be used to improve both customer service and profitability.

The system allows personnel to call up information about guests who have stayed at a Marriott before. This means that a staffer taking a reservation can spontaneously offer special

Continued on page 54

Turnover: The IS occupational hazard

BY CLINTON WILDER
CW STAFF

Everything you've heard is true. Turnover among information systems executives is increasing — and the average tenure of an IS chief is down to a mere 2½ years.

So concluded John J. Davis, president of New York-based IS executive search firm John J. Davis & Associates, Inc. In the mid-1980s, Davis pegged the average tenure of a vice-president, chief information officer or equivalent at three years; now it is about 2½ years. He based his conclusion on experiences with clients, which include financial services, media and transportation firms in major cities such as New York.

Davis admitted top management may be trigger-happy when it comes to firing the CIO but strongly emphasized that IS professionals must shoulder some of the blame. It is not enough to become good strategists; IS executives must deliver on projects and promises in the short term if they hope to establish credibility for their long-term vision for the firm's IS group.

"It's tough to find a CEO with five years of deep faith and deep pockets," Davis said. "As the CIO, you'd better prove in the near term that you're going in the right direction."

In addition to failing to set attainable near-term goals, Davis said, there are four other common complaints about IS chiefs from senior business executives that often lead to a parting of ways:

- IS executives are empire builders who want to create sophisticated technology environments — and then keep end users away from them.
- They are inflexible — continually defending turf, lines of reporting, budgets, investments and personnel.
- They do not streamline, and they resist efforts to reduce staffing and technology requirements and costs.
- They are out of touch with the company's business and view their main function as maximizing information systems — instead of profits.

"It's often a catch-22 situation," Davis admitted. "The CEO sometimes doesn't understand the role he's asked the CIO to play, then makes him a scapegoat."

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Hotels

FROM PAGE 51

rates to those who qualify, such as senior citizens and participants in the chain's frequent traveler program. Because the client history contains information about rates paid, as well as dates and locations of stays, hotel employees can cut short any price haggling based on cheaper deals supposedly obtained at other Marriott facilities.

On the road again

Hotels fall short in several areas that frequent business travelers deem important, according to a survey of 400 executives

Percent of respondents who rate category high	Importance	Performance
Billing accuracy	91%	83%
Efficient check-in	80%	55%
Reliable message and wake-up services	79%	76%
Concern for the customer	77%	54%
Competitive room rates	72%	52%
Reasonable charge for in-room phone service	72%	37%

Source: Opinion Research Corp. CW Chart: Michael Siggins

Another example of Marriott's use of technology to deliver efficient service is a check-in program being used at the hotel's O'Hare International Airport location outside Chicago. Thanks to a terminal in the courtesy van that communicates via cellular technology with the information systems at the hotel, guests can check in and receive keys to their rooms during the ride from O'Hare.

One key to using IS as a means of improving guest service is to bring the systems and information they contain to the local level — putting information in the hands of individual hotels and staff members who interact with guests. Earlier this year, Marriott began decentralizing its IS department, moving its functions closer to the individual business departments at corporate headquarters.

Hilton Hotels in Beverly Hills, Calif., reaps value from its property management system locally with preventive maintenance scheduling. Devices attached to the air conditioners in hotel rooms and the saunas in health clubs, for example, monitor the equipment's use and automatically print out work tickets that schedule engineers to perform maintenance before the machines break down. According to Peter Salazar, systems planning director, this use of the system has produced a drop in guest complaints.

Further proof that guest satisfaction and operational efficiency can be effectively combined is the front desk check-in system employed by The Breakers, a luxury resort and conference center in Palm Beach, Fla.

The system allows a front desk clerk to register a guest by running his credit card through an electronic reader. Behind that simple action is a more complex transaction — a paperless one between The Breakers and a bank holding company acting as a third-party credit-card firm that immediately handles payment when the guest checks out.

In terms of a guest interface, the system drastically reduces check-in time and lets customers proceed to more important things, such as "a meeting, the pool or the golf links," says Paul Leone, chief financial officer.

The hotel also uses administrative software designed in-house and now sold by Flagler Computer Software. Among other features, the program automatically estimates guest charges and verifies available credit as part of the nightly audit.

Quality Inns' *Jim Yoakum puts personal touch in low budget, too*

Leone estimates that these systems produce the following cost savings for The Breakers:

- Between $50,000 and $100,000 annually from reducing the bank's service charge by electronically transmitting credit vouchers rather than mailing in the paper slips.
- $20,000 in salaries for two clerks previously needed to manually separate slips and total charges each day.
- $25,000 in savings from nonpayment or chargebacks because of expired credit cards or inaccurate billings.

The Breakers also managed to combine guest service and cost reduction by creating a business center as a spin-off of its IS operation. The center functions as both an administrative service for the hotel and a business service for guests. Guests can order everything from the use of a cellular telephone to someone to crunch numbers for them through Lotus Development Corp.'s 1-2-3 spreadsheet. It also reduces total IS departmental operating costs by $100,000, according to Leone.

Service with a byte

Breakers guests making arrangements for such amenities as the business center present another opportunity for tuned-in customer service. When a guest calls from the phone in his room, a data terminal automatically identifies the caller by room number, and Breakers employees address him by name.

Dusting off the electronic welcome mat is not restricted to premier hotels. Quality Inns International, Inc. in Silver Spring, Md., is automating its low-budget Sleep Inns to boost staff efficiency at the motels. Like elegant resorts, Sleep Inns are targeting check-in and check-out procedures. They use credit-card check-in systems based on cellular technology. The credit card acts as the room key and allows a guest to check out at an automated self-check-out box made by Cap Data in Phoenix.

Both services are designed so that Sleep Inns employees can spend more time "delivering the personal touch," explains Jim Yoakum, IS vice-president at parent firm Quality Inns. If its test run with these systems gets a thumbs-up from guests, he adds, the firm will probably ask operators of the higher priced Quality Inn franchises to consider implementing the labor-saving technology.

The Breakers' *CFO Paul Leone and IS director Atesh Chandra favor speedy check-in*

The 1990s will be an era of finding new ways to use the data that hotels have collected through the use of systems during the past two decades to both attract and satisfy customers.

Jules Sieburgh, IS vice-president at Sonesta International Hotels Corp. in Boston, says the challenge is to find new combinations of information that hotels can exploit to sell rooms and generate repeat business. "We have all these databases," he says, "why can't we use them to do more business?"

Personal attention

Marriott thinks it can. The chain plans to start doing some predictive things with information it collects from its Guest Recognition System, such as knowing that a particular guest will want a nonsmoking room with a king-size bed, an iron and a hair dryer, or that he does not particularly like chocolates.

Besides using this information to provide customized services at a hotel, Chervenak says, great potential exists for using technology for marketing.

What hotels have now, Chervenak explains, is "good guest history information. Hotels can selectively send direct mail about golf or tennis tournaments or Marlin fishing expeditions" to guests who stayed for similar events in the past.

"There are dozens of ways to home in and take care of your market," he says.

Pike is a free-lance writer based in the Boston area.

Please be my guest

Conrad Hilton knows a thing or two about getting maximum return on investment. In his autobiography, *Be My Guest*, the hotel magnate recalls carving up a dining room to create more rentable space. Beds, he explains, are where the profits are for a hotel.

That piece of wisdom is hardly news to anyone in the industry, where strategy meetings often center on the importance of maintaining or increasing the "rack rate." Still, the lodging business has tended to concentrate more heavily on the relatively simple task of keeping beds full rather than on the much trickier science of obtaining the optimum balance between high occupancy and maximum room rates.

Airlines and car rental companies excel at this, says hotel consultant Mark Elbe. They have devoted a lot of thought and resources to figuring out how to intelligently fill the maximum number of seats and vehicles while getting the best obtainable price. The hotel industry, on the other hand, is just starting to get hip to the fact that yield management pays.

Obtaining just $1 more per room on the average daily rate could translate into $100,000 in additional annual revenue for a 400-room hotel with a 70% occupancy rate, says Jules Sieburgh, IS vice-president at Sonesta International Hotels Corp. in Boston.

Hotels use a variety of systems to better their odds in this high-stakes guessing game. Sonesta, for example, uses a front-office package from Computerized Lodging Systems, Inc. that runs on an MAI Basic Four, Inc. minicomputer. The front-office software is Compusystem, which costs $18,000 and includes a yield management feature.

Separate programs specifically designed for that purpose are also available. A Holiday Inn in Atlanta's chic Buckhead neighborhood uses a yield management system from Elbe's consulting firm, Laventhol & Horwath, to forecast the number of walk-in guests it should anticipate at a higher room rate compared with groups booked at a lower price. The inn had traditionally set aside 150 of its 221 rooms for group sales, says Art Beaulier, general manager. Based on results from the yield program, the inn now sets aside 25 fewer rooms and can quote room rates two months in advance.

The types of forecasts involved in yield management do not necessarily require a dedicated commercial package, Elbe says.

Much of the information needed for yield analysis, he explains, is collected in hotels' property management systems. "But most people just use it statistically," Elbe says.

Best Western International, Inc. in Phoenix has noted the connection. It is currently writing a personal computer-based property management system that will incorporate a feature to perform yield management predictions.

Best Western, which provides IS services to its 3,300 affiliate hotels, is also writing software to provide a local events database to some of those affiliates. Keith Barlow, systems development vice-president, regards this system as an extension of yield management. Hotels, he explains, will be able to correlate special local events with the dates of a planned stay, possibly convincing business travelers to add an extra leisure day to their stay.

HELEN PIKE

BOOK REVIEW

H. Ross Perot: Devil, saint — or a little of both?

PEROT: AN UNAUTHORIZED BIOGRAPHY
By Todd Mason
Dow Jones-Irwin, $19.95

Somewhere on his way to completing a biography of H. Ross Perot, veteran journalist Todd Mason ran into two roadblocks, either of which might understandably have sent him packing.

First, someone beat him to the punch. Fellow journalist Doron Levin penned the 1989 book *Irreconcilable Differences*, which offered a lively account of the unholy alliance between Perot's Electronic Data Systems Corp. (EDS) and General Motors Corp.

The second blow came when Perot refused to bless or aid Mason's project.

However, Mason — armed with an impressive amount of secondary views of his subject, not to mention his own memories and notes left over from his days as *Businessweek*'s Dallas bureau chief — soldiered on.

The result is a book that bears the scars of its impediment-ridden birth. Factually, there is little that is new to anyone who read Levin's book, and nothing comes from Perot. Moreover, the narrative is burdened by an organization (or lack of it) that borders on surrealism. Characters, themes and points wander in and out, disappearing inexplicably only to pop up in a later chapter.

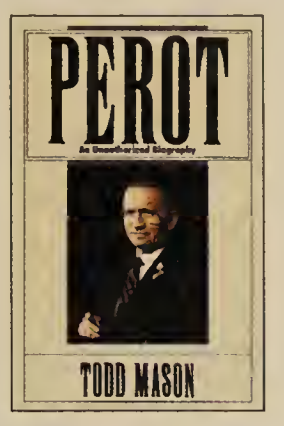
Nevertheless, Mason ultimately succeeds in delivering a work that should fascinate those interested in Perot. Readers are given front-row seats at a hands-on, 290-page demonstration of the ambivalence aroused by Perot's charismatic personality. They can feel the frustration inherent in trying to capture in writing a person whose acts defy the kind of one-dimensional, instant sound-bite characterization on which we are increasingly and perilously coming to rely.

Consider, for example, Mason's attempt to convey the high price of Perot-style entrepreneurialism at EDS, the first of his corporate creations: "Despite Perot's gestures, families bore the brunt of EDS zeal. The company was something of a family-life neutron bomb." Stop here, and you see Perot as hypocrite and tyrant.

But the author continues: "Most of the marriages and homes were standing afterward — EDS didn't hire men with faint-hearted wives — but Dad was nowhere to be found." Well, maybe not quite a tyrant. After all, can't many of us recall nights when our parents — heck, when our kids' parents — missed dinner because of work?

However, the author continues: "Perot's own family turned out well despite his brutal hours. His family had first claim on the rest of his time. Perot had the right attitude. He startled the counselors at his daughter's summer camp several years ago when he stuck out his hand and announced, 'Hi, I'm Nancy Perot's father.' " The transformation is complete: Perot has segued from Simon Legree to Alan Alda without the reader turning a page.

It is a pattern that is repeated again and again throughout the book. The reader can almost feel the author's internal tug-of-war as he struggles to be honest with himself, his subject and his audience. A chapter titled "Down and Dirty" begins by likening an angry Perot to a bird of prey and states that encounters with "the Eagle" were "aversion therapy at its finest." Less than three paragraphs later, however, the reader — who might justifiably expect a juicy anecdote or two to illustrate the assertion — is made to swallow a moral apologia: "There's nothing inherently good or evil in Perot's full-tilt persecution. Perot is implacable, relentless Perot." Then, he's served a comparison of Perot with Winston Churchill as a chaser.



Perot, Mason tells us, demands absolute faith on the part of his followers; those not 100% for him, he consigns to the ranks of those 100% against him — and we are assured there are plenty of folks lined up on both sides. Mason's inability to join either camp and the debate he wages with himself as he tries to sell himself and us on a comfortably polar position is at once his book's structural weakness and its thematic strength.

Unfortunately, the book runs the risk of disappointing readers who come to it with great expectations of the very polarity Mason won't/can't/doesn't deliver. Barely was the book out on the shelf before the word was out on the street: This was the report from the Dark Side, the warts-and-all version. The very title of the book — *Perot: An Unauthorized Biography* — spoke volumes. If the book was going to be complimentary, the logic ran, why wouldn't Perot sit down and talk to its author?

The logic was impeccable. It was also wrong. Warts? With enemies like this, Perot doesn't need any friends.

NELL MARGOLIS

Margolis is *Computerworld's* senior editor, industry.

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For more information, contact Networld at 1-800-444-3976.

AUG. 12-18

The Urban and Regional Information Systems Association. Edmonton, Alta., Aug. 12-16 — Contact: URISA, Washington, D.C. (202) 289-1685.

SHARE 75. New Orleans, Aug. 12-17 — Contact: SHARE headquarters, Chicago, Ill. (312) 644-6610.

Downsizing Conference: Moving from Mainframes to PCs. Boston, Aug. 13-14 — Contact: Digital Consulting, Andover, Mass. (508) 470-3880.

Windows/Fall Conference and Exposition. Boston, Aug. 15-17 — Contact: CM Ventures, Emeryville, Calif. (415) 601-5000.

AUG. 19-25

Eastern Regional ISSA Conference. Washington, D.C., Aug. 19-21 — Contact: Ralph S. Poore, Baltimore, Md. (301) 783-3865.

Gupta Developers Conference: Opening Windows to SQL. San Francisco, Aug. 19-22 — Contact: Gupta Developers Conference, Andover, Mass. (800) 767-2356.

Relational Today Seminar. Palo Alto, Calif., Aug. 20-21 — Contact: Codd and Date, San Jose, Calif. (408) 441-6400.

Strategic Information Systems Conference. Boston, Aug. 20-21 — Contact: University Seminar Center, Boston, Mass. (617) 248-8066.

International HP Computer User's Conference. Boston, Aug. 20-23 — Contact: Ann Pavlik, Interex, Sunnyvale, Calif. (408) 738-4848.

Summer Workshops for the Information Processing Professional. Nashua, N.H., Aug. 20-23 — Contact: Ouellette & Associates, Bedford, N.H. (603) 623-7373.

SCO Forum '90. Santa Cruz, Calif., Aug. 20-24 — Contact: The Santa Cruz Operation, Santa Cruz, Calif. (408) 425-7222.

Early, Cloud & Co.'s Summer Conference on Telecommunications. Newport, R.I., Aug. 22-23 — Contact: Early, Cloud & Co., Newport, R.I. (800) 322-3042.

AUG. 26-SEPT. 1

National Computer Graphics Association Conference and Exposition and GIS '90. Houston, Aug. 26-29 — Contact: NCGA, Fairfax, Va. (703) 698-9600.

Unix Security Workshop. Portland, Ore., Aug. 27-28 — Contact: Usenix Conference Office, El Toro, Calif. (714) 588-8649.

CASE for the 1990s. Boston, Aug. 27-29 — Contact: Extended Intelligence, Chicago, Ill. (312) 346-7090.

Auto-Tech '90. Detroit, Aug 28-30 — Contact: AIAG, Southfield, Mich. (313) 358-3570.

SEPT. 2-8

FED Micro '90. Washington, D.C., Sept. 5-6 — Contact: National Trade Productions, Alexandria, Va. (703) 683-8500.

Strategic Planning for Information Systems. Toronto, Sept. 5-7 — Contact: Barnett Data System, Rockville, Md. (301) 762-1288.

Telecommunication Management. Chicago, Sept. 5-7 — Contact: Business Communications Review, Hinsdale, Ill. (800) 227-1234.

SEPT. 9-15

Adding Image Processing to Information Systems. Toronto, Sept. 9-11 — Contact: Technology Transfer Institute, Santa Monica, Calif. (213) 394-8305.

Open Systems Applications Development Conference. San Jose, Calif., Sept. 9-12 — Contact: Unify, Sacramento, Calif. (916) 920-9092.

Implementing TCP/IP for Systems Integration. Washington, D.C., Sept. 10-11 — Contact: Data-Tech Institute, Clifton, N.J. (201) 478-5400.

Data Storage '90. San Jose, Calif., Sept. 10-12 — Contact: Cartlidge and Associates, San Jose, Calif. (408) 554-6644.

Executive Information Systems: From Planning to Implementation. San Francisco, Sept. 10-12 — Contact: Technology Transfer Institute, Santa Monica, Calif. (213) 394-8305.

The Repository Conference. Orlando, Fla., Sept. 10-12 — Contact: Digital Consulting, Andover, Mass. (508) 470-3880.

Optical Information Systems '90. Arlington, Va., Sept. 11-13 — Contact: Meckler Westport, Conn. (203) 226-6967.

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ISDN and LANs? Huh?

An innovative experiment at West Virginia University promises good news for scattered network users everywhere

BY JEFFREY N. FRITZ

As local-area networks continue to grow in importance, users and vendors are scrambling for new techniques that can provide LAN services. The latest, somewhat unlikely sounding, LAN alternative? The Integrated Services Digital Network (ISDN).

That's right. Because it supports services that can be deployed in a LAN-like manner, ISDN can actually be an effective substitute for LANs. As it exists today, ISDN cannot replace Ethernet or token-ring networks because it simply does not deliver high enough throughput speeds or offer the degree of connectivity found on most LANs. However, the fact is that ISDN *can* play an important role as a means of providing LAN extension services.

During the next two weeks, West Virginia University, the state's largest school, will complete testing of an innovative new ISDN/LAN gateway service application at two campuses in Morgantown, W. Va., and at the West Virginia Network for Educational Telecomputing (WVNET). WVNET serves as a computing hub for all state colleges and universities in West Virginia.

The system links remote users in buildings or offices without LANs and lets them access servers and mainframe data at speeds of 9.6K bit/sec. or 38.4K bit/sec. — all without extra hardware or network wiring. Besides reducing hardware requirements, the approach also reduces contention. It funnels analog-to-ISDN, ISDN-to-analog and Ethernet traffic through a common hub, eliminating the need for bridges. The overall benefit, of course, is that on- and off-site users alike can now be guaranteed faster access from any location equipped with ISDN.

After several months of testing, it is clear that ISDN is a feasible and desirable networking solution for any institution, public or private, that has remote computing users. The initial results indicate that ISDN/LAN gateway service is a viable way of providing remote LAN connectivity. In fact, it may well prove to be one of the more important ISDN applications.

Fritz is a data communications analyst at West Virginia University in Morgantown, W. Va.

The idea of using ISDN for LANs sprang up last fall. The information systems staff is continually looking for ways to make ISDN better serve the computing environment. West Virginia University has had ISDN on campus since August 1988, and several people in the telecommunications department simultaneously got the notion of using it as a LAN replacement that could bridge two Ethernet networks.

A local problem

The basic networking problem stems from a simple fact: Most local-area networks are just that — local. LANs commonly do not extend beyond the confines of a single building. Connecting users who are great distances from a LAN backbone is problematic.

For example, one off-campus user at West Virginia University, the Cooperative Extension Department, has nearly 200 staff members that access shared information on a Digital Equipment Corp. VAX attached to an Ethernet LAN. Normally, this would require enough extra hardware and cabling to add the workers to the existing Ethernet network. The problem is that these staff workers are not located in the same place. In fact, they are scattered throughout different departments and across two separate campuses.

Currently, they use campus mail to send floppy disks back and forth. Obviously, this is not an efficient way to communicate critical data and is prone to all kinds of problems: Disks frequently cross in the mail, the latest version of the data files is not always known and, of course, there is a time lag of several days produced by the campus mail. Providing each worker with remote connectivity to a common Ethernet network would result in a major increase in the department's productivity and accuracy.

In a university, as in many environments, key users need connectivity to critical LAN services at all hours — even at 3 a.m. or during a major winter snowstorm. System analysts, writers and research scientists rarely live by a 9-to-5 regimen. In fact, many say their most creative energy often occurs during what might be considered off hours. Ironically, because such users generally spend their off hours at home, they have the least efficient connectivity during their most productive hours.

Analog modems, by far the most common form of remote connectivity, usually do not offer fast enough throughput for LAN applications. Even modern 9.6K bit/sec. modems can be excruciatingly slow for large file transfers, complex graphics or downloading such applications as Lotus Development

Deborah Withey

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Digital services such as T1 or 56K bit/sec. lines do offer faster throughput, but they are not generally available to residential customers and are rarely economically feasible for remote user applications. On the other hand, ISDN, when used as a gateway service, can provide remote users with instant connectivity to existing LANs.

At West Virginia University, an installed private-branch exchange (PBX) that was once adequate had long since seen its day. There were significant performance problems, such as throughput restriction at certain times of day or users who simply could not get connected. The challenge was to figure out a way to get improved service for the various professors and staff members, many of whom worked at home during odd hours. There had to be a better way.

Two approaches

The ISDN idea made sense, so after some discussion, an agreement was made between the university and WVNET to test a pilot application.

Even before the project began, it had an advantage: The university's president actively encourages new and innovative uses of ISDN. The basic test criteria were for improved connectivity and better service to our users while still maintaining very low costs.

> ISDN, WHEN USED as a gateway service, can provide remote users with instant connectivity to existing LANs.

Approval came quickly, and testing began in June at ISDN Application Laboratories, the university's engineering science department and WVNET.

The university staff evaluated two different configurations of the ISDN gateway. One method was designed to connect multiple users through a common link at speeds up to 9.6K bit/sec. The other method supported fewer users, but it did so at higher speeds — typically 38.4K bit/sec.

For the higher speed application, a Telrad MPA-19 multiport ISDN terminal adapter was connected to an Ethernet terminal server. Connection was supported over an ISDN B channel at 38.4K bit/sec. This method provided circuit-switched connectivity at decent speeds.

Circuit switching is a connecting method that is very similar to making a telephone call. The user connects to a terminal server by placing a data call over the ISDN B channel. If multiple terminal servers on different Ethernet LANs are available, the user can select and dial the Ethernet of interest. A session can be established and last as long as desired. It is then a simple matter of the user disconnecting from the first terminal server and connecting to another Ethernet LAN for a second session.

The second configuration offers a wider connectivity base but at reduced individual throughput rates. It uses an ISDN packetized CCITT X.25 link that provides multiple logical user channels. This rather impressive-sounding concept is really quite straightforward. An ISDN Basic Rate Interface (BRI) line can be set up so that it uses the X.25 protocol to communicate with a packet assembler/disassembler (PAD) at the destination. Users are each assigned a logical channel number. In that way, a single link can support up to 50 users. This lowers the equipment and monthly line costs for the Ethernet side of the link.

Hard numbers

Typically, the ISDN switch gathers all the users and places them on a common B channel. The PAD breaks the users apart and routes each to their individual destinations. Thus, users simply dial a common ISDN number from their ISDN D channel terminal. A logical channel is assigned by the ISDN switch for each user and maintained for the duration of the session. To the user, this is all very transparent. A single ISDN B channel can support a number of individual users.

In theory, ISDN will support up to 127 users, but in practice, the number of users is much smaller — typically 50 or fewer. This is because a single B channel has a total bandwidth of 64K bit/sec. The X.25 protocol bandwidth increases as the number of users actively transferring data over the link increases. Once the total 64K bit/sec. aggregate bandwidth is exceeded, X.25 link saturation occurs. Packets from all users become damaged, causing substantial communications problems. Thus, it is necessary to place some limits on the maximum number of simultaneous users on the link.

In this case, the user can actually mix and match the services, depending on what is available, the needed throughput speed and the choice of ISDN B or D channels.

Three different devices were tested for the common gateway service on two heavily used Ethernet networks. 3Com Corp. in Santa Clara, Calif., provided a GS-1 Gateway on one of the Ethernets. A Canadian company, Develcon Electronics, Inc. in Saskatoon, Saskatchewan, installed an I Gate unit on a second Ethernet, and Datability, Inc. in New York sent its Vista Server, which was installed on the same Ethernet network as the I Gate. Most of the devices were able to support up to 50 users via a single X.25 ISDN B channel.

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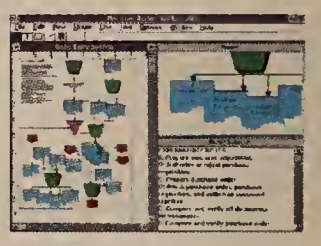
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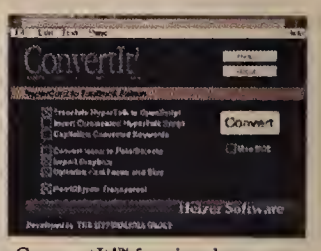

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The most challenging part of implementing this application was coordinating the myriad parameters between the packet handler in the ISDN switch and the PAD in the gateway. These complex parameters are not for the fainthearted or inexperienced.

With each new vendor, it was necessary to go through the same laborious process of aligning each gateway PAD parameter to the telephone company's central office ISDN switch. This was further complicated by a general lack of familiarity with ISDN X.25 service on the part of some vendors.

In time, this will change as vendors become more familiar with ISDN X.25 service. However, all vendors were quite willing to provide any necessary extra support, and the end result always justified the work and frustration that went into setting up the links.

Each device offered a slightly different set of advantages, and all of the devices confirmed that the application was indeed viable. One device, the 3Com GS-1, revealed a significant but little-known benefit of the gateway service.

A hidden surprise

When CCITT defined the ISDN D channel dialing protocol, it appended a 12-digit data field to the telephone number. We learned, almost by accident, that ISDN will accept a number such as 5551234D1-29071012001. The first seven digits are simply the telephone number of the destination gateway. The "D" signals the start of the data field. The central office switch connects the call to the 555-1234 destination and then passes the data field to the gateway.

In this case, the data field contains 129071012001, which is an Internet address for a specific Transmission Control Protocol/Internet Protocol (TCP/IP) device. The gateway immediately connects the user directly to the Ethernet destination. In fact, all the user sees is the log-on prompt for the specific TCP/IP device. This is a significant advantage, because the gateway becomes completely transparent to the user. Transparency enhances network security and greatly simplifies connectivity.

Unfortunately, not every ISDN device accepts the extra data. Many standard communications packages will accept and transmit the additional 12 digits as part of their dialing capability, however, thereby making transparency an easy task. This feature makes it possible to write simple scripts that automatically connect to a selected destination. Little involvement is required on the user's part, making it additionally attractive.

Extending the extension

The ISDN gateway service immediately caught the attention of campus and network communications personnel. It occurred to several people in the department that the ISDN LAN extension concept could be expanded to a larger hub gateway service.

In this configuration, the gateway hub could replace a data PBX switch at WVNET that was out of date, as well as adding supplementary services to WVNET's users. To see if such a configuration would work, the Develcon I Gate was configured for the connectivity hub configuration.

With the hub gateway configuration, multiple services can be made accessible through a common interconnection point. The hub can support ISDN and analog services as well as LAN connectivity. Although remote LAN access is an important element of this application, the gateway hub is not limited to inbound LAN connectivity.

> BY USING THE hub gateway service, an Ethernet user can connect directly to an ISDN user or, via the modem pool, to an analog user anywhere in the country.

For example, by using the hub gateway service, an Ethernet user can connect directly to an ISDN user or, via the modem pool, to an analog user anywhere in the country.

In a similar fashion, an analog user can use the modem pool to gain access to the gateway and connect to an ISDN user. The analog user dials the number associated with the gateway modem pool. Once connected, the user selects the ISDN service prompt and then simply dials the ISDN data number. And the ISDN user dials the common X.25 link number of the gateway hub and selects the modem pool service.

The user is then connected to an available modem and can issue standard modem AT dial commands. Thus, true interconnectivity among a large variety of different services can be realized. Users on analog, ISDN or LAN services can have direct access to mainframes, minicomputers and servers residing on the LAN.

With a hub gateway configuration, ISDN simply becomes integrated as part of a much larger network fabric. Having the ability to connect from any service to any service forms the basis for true interconnectivity. While this ISDN-inspired hub gateway service does not completely fulfill this goal, it is a credible step in the right direction. Individual circumstances may differ, but the principles successfully tested at West Virginia University can easily be adopted by many other organizations as a low-cost LAN alternative. •

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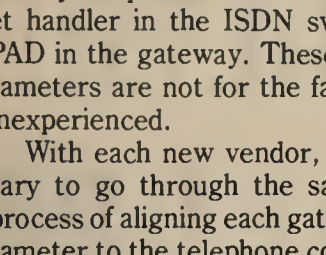

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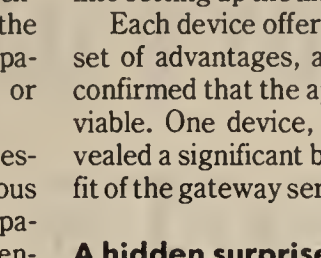

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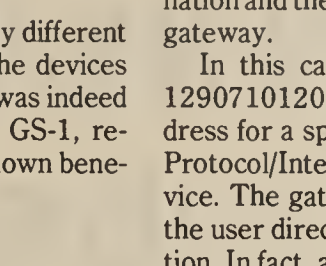
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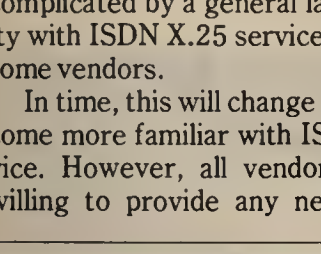

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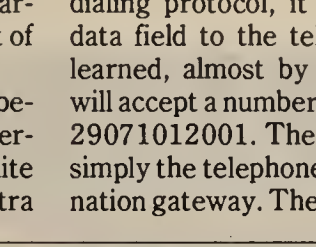
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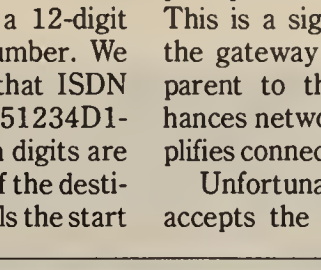
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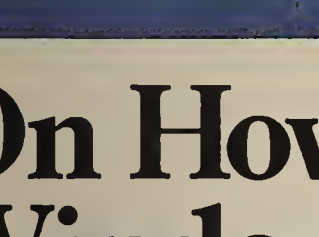
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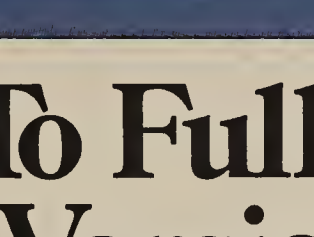
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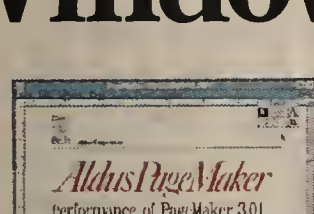
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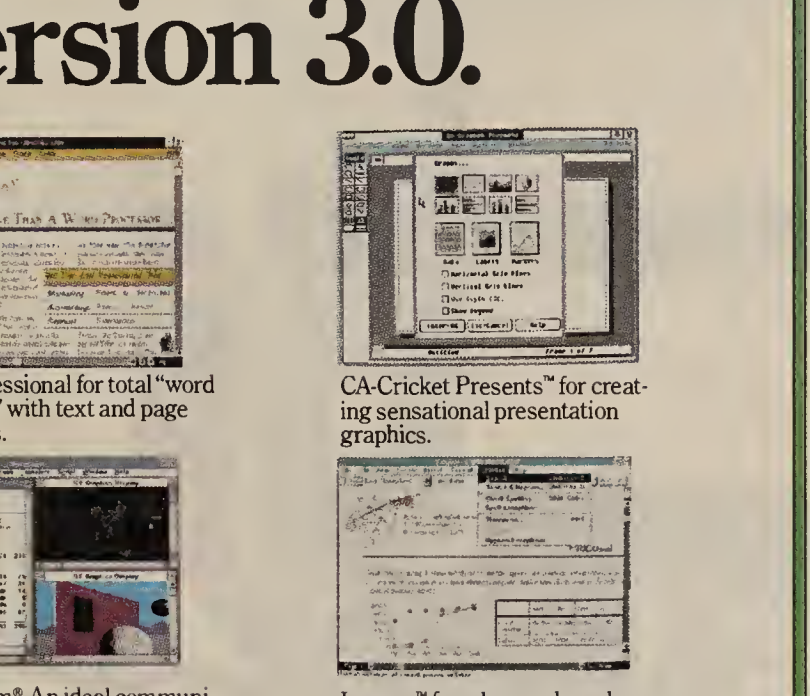

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NATIONAL
BRIEFS

Read my MIPS

Two weeks after **Stardent Computer, Inc.** co-founder and former co-chairman **Allen Michels** went to court to call **Kubota Corp.** a technology thief, Stardent is calling its Japanese investor/partner "partner" — and then some. Last week, the allies made an announcement of the imminent opening of Sunnyvale, Calif.-based **Kubota Pacific Computer, Inc.** — created, a Kubota spokesman stressed, "to manufacture supercomputer products for [Kubota's] strategic partner, Stardent." Kubota also announced that its vice-president of business development, **Naohisa Matsuda**, will head the new subsidiary.

■

Deja vu all over

Meanwhile, back in San Francisco, **Michels** and co-plaintiff, co-founder and, until their mid-July termination, co-chairman of **Stardent** Matthew Sanders, stated their take on the firm's latest move. "Our terminations are unlawful and retaliatory," they said. "This compounds the illegal acts alleged in our complaint, and we plan to seek immediate redress in the courts."

More briefs on page 68

The name of the game

Packard Bell is banking heavily on good old American nostalgia to win clone war

BY JAMES DALY
CW STAFF

What's in a name? In the faceless sea of IBM Personal Computer clones, sometimes it can be worth the whole shootin' match.

Take Chatsworth, Calif.-based Packard Bell, for instance. Its ads recall the company's early pioneering days in radio and television, evoking the winsome nostalgia of grandma listening to one of Franklin Delano Roosevelt's fireside chats or Dad guffawing at Uncle Miltie in a dress on the tube. The sales pitch: "America grew up listening to us. It still does."

A great old American company with a grand old heritage, right? Well, not quite.

"The name is really quite a marketing ploy, but I guess it beats calling yourself something that sounds vaguely Korean," said John Venator, executive vice-president at Schaumberg, Ill.-based ABCD: The Microcomputer Industry Association. "It gives consumers the impression it's a U.S.-built machine when in fact it's made in Asia, just like most of the other clones."

The original Packard Bell is long gone, having crumpled like most of the rest of the domestic consumer electronics industry in the 1960s. It was swallowed up by Teledyne, Inc. in 1968 and, by the mid-1970s, was little more than a twinkle in the eye of the geriatric set.

That's when Beny Alagem stepped in. Alagem, an Israeli immigrant and co-founder of a Southern California semiconductor distribution business, teamed up with a pair of financial investors and in 1985 plunked down a reported sum of $100,000 and bought the Packard Bell moniker and all its historical associations.

"Although Packard Bell products hadn't been in the public eye for a while, we discovered there was still a lot of name awareness," said director of marketing Dennis Cox. Company researchers discovered that older customers remembered the old Packard Bell radios, younger ones recalled the TVs and some folks even confused it with Hewlett-Packard Co.

With half the recognition battle in the PC clone market already won, Alagem put together a battle plan to sell his systems. He figured that Asian suppliers could make the parts inexpensively and to order, and he signed on with a number of Asian component manufacturers, including Taiwan's Tatung Co. and South Korea's Samsung Electronics Co.

"Our goal was very simple," said Alagem, who is now president of the firm. "Bring a high-quality turnkey product into the marketplace and back it up with a high level of support."

Was it dishonest to play on the customer's familiarity with the original firm when, in fact, the only thing that remained was the name and fond memories?

"No, of course not," Alagem said. "We continue to maintain the spirit and the high-quality product of the original company."

By late 1986, Packard-Bell was shipping the parts to its headquarters, where they were assembled and sent off to an array of home electronics and consumer goods stores.

Shelley Gazin

Alagem *uses name recognition to his advantage in marketing Packard Bell products*

But Packard Bell was not about to bank its fortune on misty-colored memories. The systems range from Intel Corp. 80286-powered laptops to the Froce, 38625, which packs an 80386 processor running at 25 MHz with a color monitor and 60M-byte hard disk. Prices normally start at less than $1,000, and a home video is included with each system to smooth computer setup.

"Although they are not as strong a name as NEC, Epson or Zenith, the perception is that Packard Bell is a quality low-cost PC supplier," said Mark Levitt, an analyst at Framingham, Mass.-based market research firm International Data Corp. (IDC). "They're also unique in that they offer a wide range of performance in channels formerly limited to the low range of performance. Their presence has

Continued on page 68

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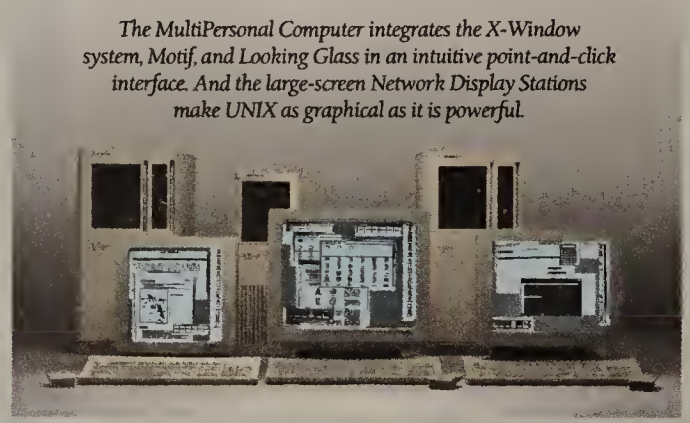

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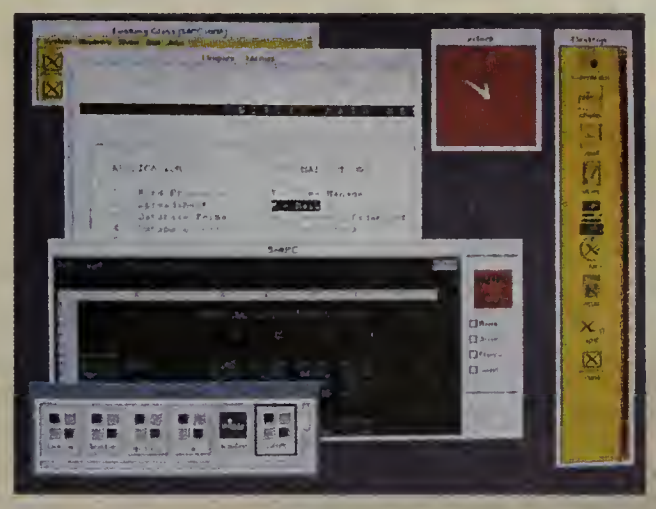

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'Buyer beware' for software

Vendors purchasing code must watch for infringement to avoid lawsuits

BY JOHANNA AMBROSIO
CW STAFF

The ancient Romans did not have software vendors in mind when they coined the phrase *caveat emptor*. But the sentiment "let the buyer beware" seems especially applicable when a software vendor sets out to acquire a product. There is no way, legal experts say, to guarantee that the product is completely aboveboard and free of code that infringes on another vendor's product.

This sticky issue was recently brought to the fore by the lawsuit filed by Computer Associates International, Inc., alleging copyright infringement by Goal Systems International, Inc. [CW, July 2]. The package in question, which Goal has conceded does indeed infringe on CA's copyright, was one that Goal purchased from an individual developer in 1988. The infringing code, Goal said, goes back to when the company first bought the package.

"The Goal-CA lawsuit underscores the risk that some rightful owner will come forward unexpectedly somewhere down the line and stake their claim," said Barry D. Weiss, an attorney at the Chicago law firm of Neal Gerber & Eisenberg.

So what is a software vendor to do? There are some standard protections, collectively known in the legal trade as "due diligence," which say to the world and to the courts that the buyer has done all it can to ensure that the product is clean.

One commonly used device is the insertion of something called an indemnification clause into the purchase contract. That means the seller guarantees the product to be free of infringing code — or, if it turns out not to be, the seller guarantees to repay the buyer for legal fees and other costs.

Practically, however, indemnification often does not work that way. Typically, the seller is a one-person operation or a very small company. When the lawsuit hits, that person or company has no resources with which to pay back the buyer.

> "IF A GUY really wants to cheat you, he can. You just have to be extremely cautious."
>
> CHARLES WANG
> COMPUTER ASSOCIATES

Another tack is to hold a portion of the payment for the company or product in escrow for, say, seven years or for however long the statute of limitations holds. That money can be used to pay legal fees and damages, although this strategy may not be popular with the principals of the selling company.

Also, the acquirer generally sends business people and technical people to check out the package.

"Your technical people go nose to nose with theirs, and you ask a lot of questions," said Charles Wang, CA's chief executive officer, who has been through this process once or twice himself. "You can tell whether the other guy knows the code like he should."

James A. Rutherford, Goal's chairman, said, "Before an acquisition, you look at the source code. But you can't look at every line of code in a large product. So you rely on the warranties in the contract and on the general feelings you get from and about the principals of the other company. You want to make sure the other people have the same ethics and ideas about doing business that you have."

What the issue ultimately comes down to is the relationship between the principals involved in the deal. "If a guy really wants to cheat you, he can," Wang said. "You just have to be extremely cautious."

Still, it does not behoove the negotiations process to make the other party too uncomfortable. "You ask too many questions, and the seller thinks you think he's a crook," said Daniel T. Brooks, an attorney at Cadwallader, Wickersham & Taft in Washington, D.C. "And if you ask who wrote which portions of the code, the CEO looks at you like you're crazy."

"There's only so much you can do," Weiss said. "There's no title insurance for software, like you have with a house. And you can search through copyrights, but that process is unwieldy." In addition, many vendors copyright their software only when they're about to file suit against someone; in view of this practice, a copyright search provides only something less than a reliable guarantee.

Money maker?

Insurance is something that the software industry might consider, said John C. Lautsch, an attorney in Orange, Calif. "My guess is that it may be possible to arrange some kind of insurance policy to protect against this. If the market is large enough, and the policies are written so that the insurance companies will make money off this, then maybe it can be done," he said.

Lautsch suggested that there might be "fruitful discussions between insurance companies and bigwigs in the software industry. People tend not to deal with software companies because they don't realize the market and because they don't know how to approach it. It's up to the software industry to show them how."

Super bowl

Supercomputer vendor Cray Research showed exponential profit growth in the second quarter

Company	Revenue April through June	Percent change from 1989	Net income April through June	Percent change from 1989
Computer Sciences	$407.6M	19%	$13.7M	4.6%
Control Data*	$405.6M	(49.6%)	$11.2M	—
Convex	$51.9M	39%	$4.4M	69%
Cray Research	$227M	77%	$42.6M	868%
Index Technology	$13.2M	41%	$494,000	(19%)
Network General	$10M	14%	$1.8M	64%
Northern Telecom	$1.7B	12%	$90M	28.6%
Phoenix Technologies	$9.3M	6.9%	$(4.65M)	—
Seagate**	$668.1M	80%	$29.7M	24%
Silicon Graphics	$120M	41%	$11.2M	133.3%
Stratus Computer	$94M	13%	$7.1M	(21%)
Texas Instruments	$1.6B	(2.3%)	$11M	(89.6%)

Parentheses indicate a reduction or loss

* Revenue decline reflects sale or discontinuance of several operating units, including Imprimis Technology; also, results include pre-tax gain of $4.3M on sale of Silicon Graphics stock.

**Results include operations of Imprimis Technology from Oct. 2, 1989 date of acquisition.

CW Chart: Paul Mock

Packard Bell

FROM PAGE 65

grown tremendously. More and more stores carry them. People have recogized the name and the history that goes with them, and you see a lot of people buying and selling them."

Packard Bell also offers four months of on-site service as well as a one-year carry-in guarantee on parts and labor.

So far, the strategy has worked. Last year, the 600-employee company pulled in more than $600 million in revenue; its business products division is growing 30% annually. Research firm IDC ranks them among the top six U.S. suppliers of IBM PC-compatibles, and in the home office segment, Packard Bell is the No. 1 supplier of desktop computers, according to Personal Technology Research, based in Boston.

Packard Bell's Dennis Cox

Part of its success evolves from its ability to sell its machines everywhere from Sears, Roebuck and Co. to Highland Superstores — a strategy that sometimes causes consternation among retailers.

"They try to be all over the place, so they sometimes run into availability problems," said Doug Hickman, vice-president of marketing at Fretters, a $231 million electronics and appliance store chain based in Livonia, Mich., that also stocks Packard Bell systems. "We've learned our lesson with Packard Bell: You better take it while it's there because if you go back next week it might not be there."

> "ALTHOUGH PACKARD BELL products hadn't been in the public eye for a while, we discovered there was still a lot of name awareness,"
>
> DENNIS COX
> PACKARD BELL

Packard Bell officials said they hope to ride this high-demand wave into the next century.

"The PC in the 1990s will be like the TV in the '50s; everyone will want one," Cox said. If that happens — as historians have been saying for years — the past will indeed be prologue.

NATIONAL
BRIEFS

Letting go

Under the terms of an agreement expected to take effect this week, Chicago-based **Andersen Consulting** is selling database marketing consulting firm **Kestnbaum & Co.**, acquired in 1982, to the Kestnbaum management team. Terms of the sale were not disclosed. Once managerial independence is reestablished, the firms plan to continue working together.

■

Keeping Lotus out of court

If you hear the sound of feet midweek, it may be the programmers and researchers who are planning to march on **Lotus Development Corp.**'s Cambridge, Mass., headquarters to protest the Lotus-engendered string of lawsuits that is currently threatening to extend the reach of software copyright protection. The recently established League for Programming Freedom, which is sponsoring the march, is leaving little to chance: A backgrounder sent out to prospective protesters includes instructions on how to conduct a potent but polite march ("Please remember not to litter, not to block pedestrians and to stay out of the street") and suggestions for placards ("Keep your lawyer off my computer.")

■

Hauling Lotus into court

When last seen, **Refac Technology Development Corp.**'s attempt to sue six leading software vendors, including Computer Associates International, Inc. and Microsoft Corp. for patent infringement on behalf of the patent's owner, Canadian **Forward Reference Systems Ltd.**, had fallen afoul of a New York law against plying another's claim for profit. Earlier this month, however, Refac was back in court, with **Forward Reference** as a formal co-plaintiff and a request to dismiss its claims against five of the defendants. This time, the judge said yes. Refac and Forward's suit will continue against the one remaining defendant: **Lotus.**

Stalking the ethical businessperson

BY J. A. SAVAGE
CW STAFF

PALO ALTO, Calif. — Ferreting out ethical businesspeople from a stack of 400 nominations — some hand-typed, others complete with videocassettes and boxes of supporting material — will not be an easy task for the Business Enterprise Trust, an organization launched recently and premised on the idea that "business ethics" is not an oxymoron.

While the 1990 nominations for the five ethics awards that the trust will present cover most types of business, the trust — whose board of trustees includes the chief executive officers of IBM and Hewlett-Packard Co. — has few nominations from the world of high technology.

Searching for a reason why the high-tech industry is so underrepresented, the trust's president, Kirk Hanson, said, "There is a single-mindedness in many high-tech companies toward product development that can leave little time for innovative management practices, the balancing of work and family and the integration of a business and a home identity."

Established by television producer Norman Lear ("All in the Family" and "The Jeffersons"), the trust is dedicated to applauding principled business. "In the wake of the decade of greed, people are searching for meaning beyond winning," said Kathleen Meyer, executive director of the trust. "That search has people asking about how their business institutions can serve society more effectively."

The trust does not yet have categories yet for its awards, which it hopes to present in early 1991. The award categories will shape up as the screening committee and the board of trustees rifle through nominations. "The first award will probably not go to someone who has sacrificed a job and career to do good," Hanson said. "The majority of the board believes you can be ethical and also be profitable."

Hoping to be the Pulitzer Foundation of the business world, the trust is looking for a "major endowment" to be able to continue its work, but financing is secure for the near future, Hanson said.

The trust's staff also hopes that the trust can be used as a clearinghouse for information and, in turn, is building a database.

As to the scarcity of high-technology nominations, Meyer said that the nominations are already open for next year's awards, and they are anxious to hear from the industry — but please, hold the videotapes.

INTERNATIONAL BRIEFS

Suddenly, this summer

The **European Economic Community** (EC) recently issued a reminder that open systems meant something important even before it became a computer industry buzz phrase. An EC directive published in the EC's official journal on July 13 marked the end of national monopolies over the supply of telecommunications services. Transition periods have been provided to allow the phasing in of competition for some services.

French connection

When French software and services provider **Cap Gemini Sogeti** goes into acquisition mode, it doesn't kid around. Only two days after paying $66 million for **Scientific Control Systems**, the troubled West German subsidiary of UK-based **SD-Scicon**, Cap Gemini announced plans to buy a 69.5% stake in UK-based computer services firm **Hoskyns**, currently owned by **General Electric Corp.** and West Germany's **Siemens AG**. Valued at approximately $520 million, Hoskyns reportedly will go to Cap Gemini for some $363 million.

Talking with your hands

Kenkyusha Limited Publishers, purveyor of bilingual dictionaries in Japan for more than 80 years, has entered its first licensing agreement with a U.S.-based information publishing company, according to a Kenkyusha executive. The deal, inked earlier this month with Mt. Holly, N.J.-based **Franklin Electronic Publishers, Inc.**, aims to put quick translation in the palm of your hand — literally. Franklin now holds the worldwide rights to publish Kenkyusha's *New Little English/Japanese, Japanese/English Dictionary* in handheld electronic form.

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Lotus warning sours Wall Street's mood

ANALYSIS

BY PATRICIA KEEFE
CW STAFF

CAMBRIDGE, Mass. — Wall Street clobbered Lotus Development Corp. after the firm cautioned analysts two weeks ago to expect a weak third quarter. Despite a record-breaking second quarter, the spreadsheet maker's stock lost almost 20% of its value in the first two days of trading following that warning.

"Anytime a company loses 20% of its value in one day, it's a problem," said William Bluestein, an analyst at Forrester Research, Inc. in Cambridge, Mass. "There is a lot of doubt and anxiety about whether Lotus can jump the next hurdle, which is finding a successor to 1-2-3." The failure to merge with Novell, Inc. heightens the concern, analysts said.

"I think [Wall Street's reaction] is an interpretation that the basic Lotus strategy — 1-2-3 for everyone — is not working," added Bruce Lupatkin, an analyst at Hambrecht & Quist, Inc. located in San Francisco.

Fueling Wall Street's panicked reaction was the fact that Lotus officials publicly admitted that the competition has made inroads into 1-2-3's user base.

This concession sent up a red flag for analysts who view the company as too reliant on one product line. Also worrisome, analysts said, is the fact that Robert Schechter, Lotus' chief financial officer, said the firm will cut expenses.

Bluestein claimed that Lotus operates under a high overhead and predicted the firm "will go through a cost-cutting binge." David Bayer, who tracks Lotus at Montgomery Securities, conceded that Lotus' net earnings are about 13%, compared with 23% for rival Microsoft Corp.

"Lotus historically has not demonstrated an ability to control costs," said Robert Therrien, an analyst at Paine Webber, Inc.

Technology analysts have been saying for several weeks now that 1-2-3's market share is under increasingly successful attack, with market share estimates ranging from holding steady to actually slipping as much as five percentage points.

For the most part, analysts are unwilling to attribute the stock's drubbing to either the malaise currently infecting technology stocks in general or to the series of copyright infringement suits filed by Lotus. Many of them see the suit against Borland International as little more than a defensive reaction to Borland's aggressive marketing campaign.

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>
> WILLIAM BLUESTEIN
> FORRESTER RESEARCH

Instead, the stock's swift downward descent is seen as directly attributable to concerns about Lotus' overall vision, and more specifically, to uncertainty regarding two announced, but undelivered products: 1-2-3 for Microsoft's Windows, which is slated for delivery in the first half of 1991; and 1-2-3 Version 3.1, which provides limited Windows support while adding graphical capabilities missing in Version 3.0. It is slated to ship at some point in the third quarter.

"Their high-end strategy initially spurted with 3.0 and then tailed off," said Bayer, who thinks sales momentum will be "hard to come by" until Lotus ships its Windows spreadsheet.

As a result, Wall Street remains split over the impact of Windows. It is just too early to tell, analysts said.

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Wang fills out the middle

LOWELL, Mass. — Joseph M. Tucci, a 20-year industry veteran who most recently served as president of U.S. Information Systems at Unisys Corp., is scheduled to start this week as Wang Laboratories, Inc.'s executive vice-president of operations.

Hailed by Wang Chairman and Chief Executive Officer Richard Miller as a multitalented executive with a particular knack for building productive partnerships with customers, dealers, distributors and value-added resellers alike, the 42-year-old Tucci will hold sway over all North American sales, marketing, service and support at Wang.

In addition, he will chair the company's newly minted Worldwide Sales and Marketing Council and will take his place on the Wang executive committee alongside Miller and fellow Executive Vice-Presidents Mike Mee, who is chief financial officer, and Horace Tsiang, who serves as chief development officer.

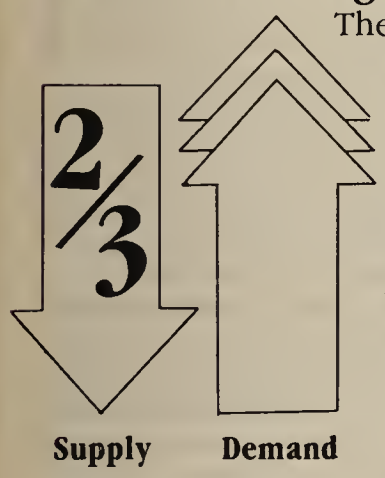
A few important tips on recruiting computer professionals

Finding computer talent isn't as easy as it used to be. In fact, there was a time when you'd just run an ad in the local newspaper and you could make a hire without waiting too long or spending too much.

But times have changed. And like so many facets of today's business, so has the effectiveness of traditional recruiting methods.

What's more, many of today's recruiters *don't use* today's most efficient methods — methods that save time and money for some widely unknown reasons.

The supply of qualified professionals isn't meeting demand



The American Council on Education reports that the number of college students choosing computer careers is down two-thirds since 1982. To make matters worse, there are more computers in today's business that require the skills of this shrinking market than ever before. And while you may never consider the company next door your competitor, it likely *is* competing for the same computer talent today. The result is a classic supply/demand problem that isn't changing for the better -and that's sure to make your recruiting tougher in the '90s.

Ads in local papers don't reach your major hiring market anymore

That's because they generally reach "active" job seekers — those who actively seek out the local newspaper to find jobs — and who a recent *Computerworld* job satisfaction survey found to represent 2 in 10 of today's computer professionals. The study also found that 7 in 10 of today's computer professionals are "passive" job seekers — those who would *consider* new job options, but likely never look for them in the local newspaper. (The remaining small percentage are "non-movers" content with long-term jobs.)

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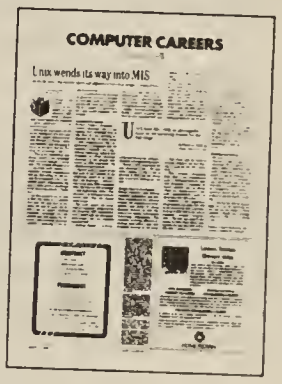

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The hotel welcome mat is out

Hospitality industry needs new technology experts to drum up business

BY HELEN PIKE
SPECIAL TO CW

There may be more than the usual number of "Vacancy" signs flashing outside hotels and motels across the country this year because of overbuilding. However, the firms that run these hostelries say there's room at the inn for computer professionals. They hope people who understand new information technologies help design systems that leave the "No Vacancy" sign out more often.

Hotel and motel operators are looking for information systems professionals with expertise in the Unix operating system, the C programming language, relational databases and telecommunications.

The companies are turning to distributed processing, including personal computer networks, in modernizing the so-called property management systems that support most of a hotel's operations — such as yield management, guest services, registration, payroll and night audits.

In five years, guests at deluxe hotels will be able to order a "PC room" with a microcomputer, modem and facsimile machine, according to Dave Berkus, president of Computerized Lodging Systems, Inc. in Long Beach, Calif. More hotels will offer videoconferencing, too, he says.

At the corporate level, more and more hotel and motel firms are exploiting large-scale transaction processing systems to manage reservations. They're also relying on large databases to build customer relationships.

Ray Vella

With the business highly decentralized, communications is also a big concern. Communications professionals should have little difficulty finding work if they can help hotel firms navigate the thicket of deregulation, especially carrier rates, says Jules Sieburgh, vice-president of IS at Sonesta International Hotels Corp. in Boston. He sees a lack of job applicants with these skills and fills the gap by hiring consultants.

Managers at other hotel and motel operators describe similar requirements. Quality Inns International in Silver Spring, Md., needs business and technical people who can help lease communications lines from carriers and knit them into a network, says Jim Yoakum, the company's vice-president of IS. Ramada, Inc. in Phoenix could use people experienced with dial-up or leased networks, according to Jim Strong, vice-president of information services.

Integration will be another important area in the 1990s as hotel companies tie together databases and applications as well as networks. In coming years, Hilton Hotels Corp. will be looking for people who understand different systems and can help build bridges between them, says Peter Salazar, director of systems planning at the Beverly Hills, Calif., company.

Managers emphasize the need for IS professionals to understand the hotel business. This applies to an individual hotel's situation as well as the corporation, at least at companies such as Marriott Corp., which is decentralizing its IS operations. Marriott needs people who can help bring in more customers by analyzing a particular hotel, says Charles L'Esperance, vice-president of IS.

At a Marriott hotel near Chicago's O'Hare International Airport, for example, the company has exploited cellular telephone technology in developing a system that lets guests check into their rooms from the airport courtesy van.

Hotel and motel operators count on IS people to help explain the role of IS to nontechnical managers. At Quality Inns, an IS professional may need to convince the manager of one of the company's franchised, low-budget Sleep Inns that self-service checkout systems can cut labor costs and improve customer service, Yoakum says.

develop and sell property management systems provide another career option for computer professionals interested in the hotel business. A job with one of the vendors can provide an introduction to the way the industry works, Sieburgh says. However, working for one vendor is likely to provide a limited view of the business, Berkus says.

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>
> DAVE BERKUS
> COMPUTERIZED LODGING SYSTEMS

A background in the hotel industry can be almost as important as technical experience in landing a job. Salazar's ideal candidate has three to five years of experience in the industry and a minimum of two years working with systems. However, a track record in the airline industry or another part of the travel business can make it easy to get up to speed, he says.

Pay for corporate IS directors in the hotel industry is comparable to compensation in other businesses. The IS director at an 800-room luxury hotel in a major city, meanwhile, would be likely to earn a salary of about $60,000 per year, says Larry Chervenak, president of Chervenak, Keane & Co., a hotel consulting company in New York.

The software vendors that develop and sell property management systems provide another career option for computer professionals interested in the hotel business. A job with one of the vendors can provide an introduction to the way the industry works, Sieburgh says. However, working for one vendor is likely to provide a limited view of the business, Berkus says.

IS professionals with experience in the hotel business will find that the vendors need that industry expertise, Sieburgh adds. The vendors don't provide all the functions some hotel operators need, prompting the hotel companies to heavily customize off-the-shelf software packages.

One drawback to certain jobs with hotel IS groups and their vendors is the hours. Hotels operate around the clock, which means IS professionals and the vendors' customer support people must be available for trouble-shooting at odd times. "It's not a glamorous field," Sieburgh warns. "You work when everyone else parties."

Pike is a free-lance writer based in the Boston area.

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1. **Director of Academic Computing**

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2. **Director of Technical Services and Communication**

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Please send nomination or letter of application with resume (please indicate the position for which you are applying), no later than Wednesday, August 22, 1990 to:

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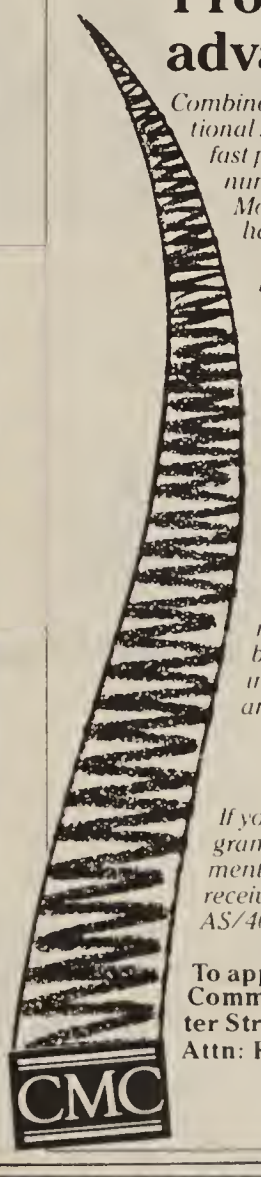

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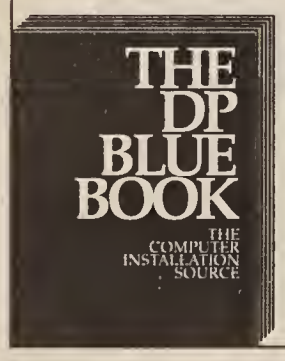

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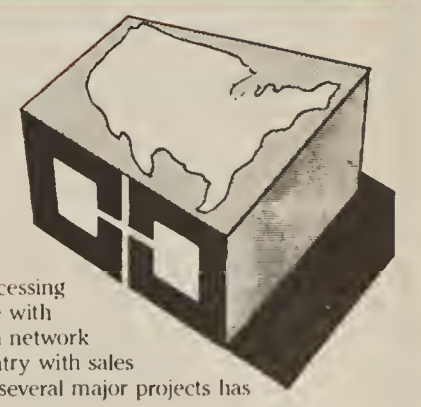

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MARKETPLACE

Making presentations graphic

PC presentation software offers a myriad of functions to sort through

BY JESSICA KEYES
SPECIAL TO CW

Gone are the days when information systems professionals could be content with ho-hum presentation materials such as hard-to-read overhead transparencies.

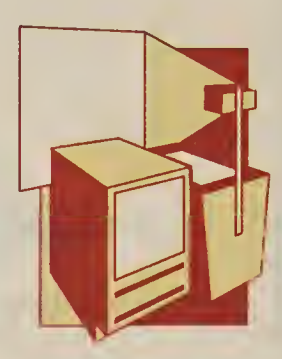
Today there is a wide array of computer-driven presentation devices to choose from. Even the meaning of "presentation" has changed as technology has yielded such goodies as personal computer slide shows, LCD projection panels and video add-in boards.

The common denominator for the new media is the software used to create the images. The marketplace is chock full of these tools. Most of them are quite similar; in fact, they tend to be competitively priced at about $495. However, as you start investigating them, it's a good idea to use a checklist of features to see how your tool of choice stacks up against the others.

The selection of a display technology might affect the choice of an appropriate software package, so let's take a brief look at the options in that area first.

The majority of presentations still rely on overhead transparencies or 35mm slides, with overheads the more popular choice. The reason is that overheads are easier to make. Just load transparency paper into the laser printer or photocopier and voila — a presentation.

Slides are often the mode of choice for the discerning presenter looking for a more professional touch. Until now, however, this method has been expensive and usually has been assigned to a specialized department. But that's no longer the case. Service bureaus that are popping up all over will take a PC image file and, for $3 to $10, have a 35mm slide of it on your desk overnight.



Overheads and slides don't always cut the mustard, however. With occasions calling for something more elaborate, "real time" presentations might be just the thing. Try using a PC to display a slide show with an LCD projection panel.

The PC slide show has nothing to do with 35mm slides. It's a software function that directs the computer to display a series of images after you've determined the sequence and the timing for the show.

In the past, it was impossible to present a PC slide show to more than two or three people at a time. Now, however, you can hook your PC to an LCD panel, place the panel on top of an overhead projector and display the images on the wall. Instantly, that puny PC screen is displayed in full color at 10 times its size.

For some people, this medium still is not enough. They may go for the latest presentation device — video boards. Picture a videotape of a manufacturing plant. Now hear narration describing how your new inventory system will save $2 million per year. Suddenly, a chart appears on top of the live action with financial data in color. How is it done? With a PC add-in board that lets you superimpose computer graphics on live-action video.

If you plan to use one of these technologies to put on an intensive multimedia production — a marketing pitch to users, for instance, or a presentation to top managers — make sure to get software with the capabilities to handle it. Your checklist should include the following items:

- **Color.** While spreadsheet graphics are fine for reports and informal presentations, there's nothing like vivid color to add spice to a presentation — or to help illustrate a point.
- **Chart types.** It's nice to be able to draw a good pie chart, but what other types of charts does a package accommodate? Surface? Scatter? Bar?
- **Freehand drawing.** When a preset chart is not enough, the ability to use a mouse to sketch in an additional consideration is invaluable.
- **Paint features.** These features are used like freehand drawing but provide the whole range of functions available in screen painting packages. They can let you draw a circle, rectangle or square; erase; point and color; point and fill; and rotate, invert, magnify or edit an object.
- **Data import.** Can you import data from a spreadsheet? What about a database package? Without this capability, you are reduced to rekeying the data.
- **Slide-show support.** You need to link together images to put on a show. What is the maximum number of images you can line up? You may want to run them in an unattended mode rather than press the enter key each time.
- **Fonts.** Packages vary in the number of fonts, or typefaces, that they support. Some, but not all, can rotate this text.
- **Clip art.** Check to see whether the package comes with a library of images that you can use as part of your presentation — a picture of a computer, for example.
- **Art import.** Does the package permit the import of graphics other than the ones it creates? Standard graphics images, for example, are stored in the Tag Image File Format or PCX format. Does the package import these formats? This function is especially important if you use a scanner to scoop up images.

Think of the presentation you're planning in terms of a recipe. You might need a pinch of color, two dashes of good clip art and an interesting font or two. Combine in a slide slow and present with an LCD projection panel. What audience could resist?

Keyes is president of New Art, Inc., a management and computer consulting firm in New York.

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XT Model 089	$675	$825	$475
AT Model 099	$1,050	$1,375	$850
AT Model 239	$1,075	$1,325	$700
AT Model 339	$1,375	$1,400	$900
PS/2 Model 50	$1,300	$1,700	$1,050
PS/2 Model 60	$2,500	$2,600	$2,400
Compaq Portable II	$1,050	$1,150	$875
Portable III	$2,175	$2,500	$1,900
Portable 286	$1,400	$1,875	$1,300
Plus	$675	$750	$650
Deskpro	$825	$900	$800
Deskpro 286	$1,400	$1,625	$1,300
Deskpro 386/16	$2,500	$2,750	$2,475
Apple Macintosh 512	$375	$775	$275
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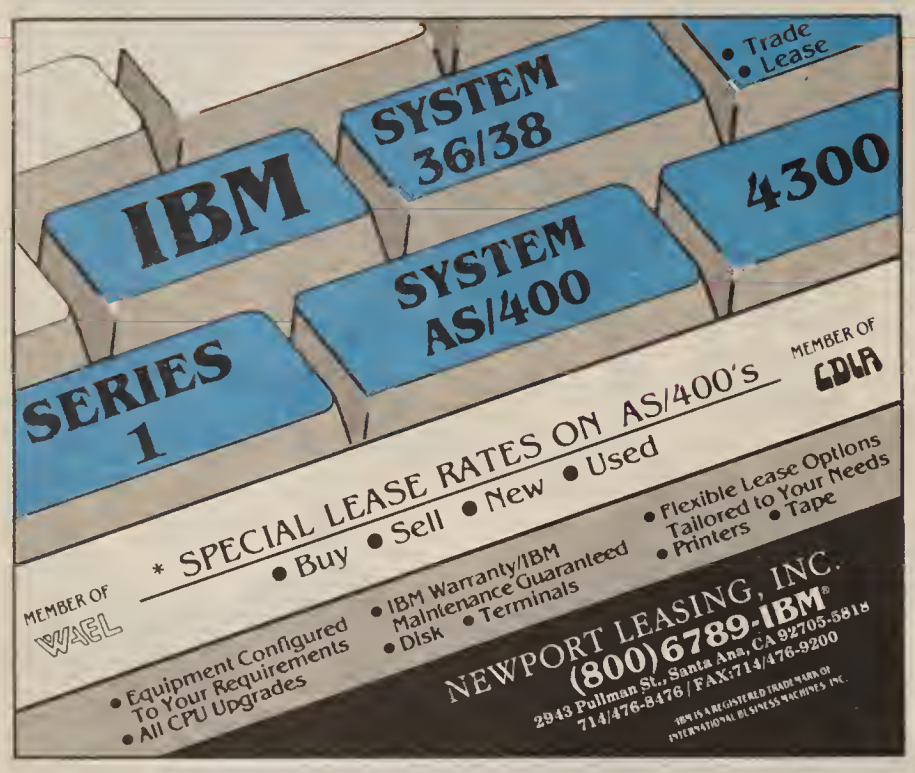

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Detecting training deficiencies

A questionnaire is only the first step in identifying training needs

BY MARK DUNCAN
SPECIAL TO CW

People in the business of information systems training are comfortable with the traditional means of identifying training needs: The staff conducts a needs analysis, or management hires a consultant for the job.

With this tried-and-true method, staff members or consultants circulate questionnaires to collect information on training needs. Then they match the needs with courses to develop departmental or personal training programs for an appropriate time frame — six months, perhaps, or a year.

This technique is easy, and it works. However, total reliance on it might leave the need for some training undetected. IS organizations should consider a number of other methods that could shed light on these needs.

Production and test error statistics. Most IS groups collect data on production errors, but a lot of them don't log errors uncovered during testing of systems. Statistics on both production and test errors can point to deficiencies on the part of analysts and programmers who develop and maintain systems.

Recurring errors can indicate training needs in specific areas, such as development of a particular type of transaction or the use of a certain development utility. It is relatively easy to measure the effectiveness of the resulting training by looking for a reduction in the number of these errors.

Long-range automation plans. Whether "long-range" means one, two or even five years, future automation plans are an important tool in identifying training needs. The plans typically document individual IS projects, hardware and software requirements and schedules. They point not only to specific training needs but also to the times when skills will be required.

Corporate business models. These models, generally developed by a data administration unit, describe current and planned business activities and the related information requirements. A model is typically a four-level hierarchy that identifies business functions, the processes within each function, the activities within each process and the information needed to accomplish each activity.

In the IS organization, for example, "data processing" might be the function that includes the "administer application projects process." This process in turn spawns a number of activities: assisting users in defining requirements; developing cost estimates; designing, developing, testing, installing and maintaining application systems; and so on.

Activities are an excellent tool for identifying training needs because they are the lowest level of detail in the business model.

Software portfolio analysis. An examination of the software portfolio produces a global view of an organization's information systems. It categorizes systems by type, size, age, language, complexity and other relevant characteristics.

This kind of analysis might show that an old but reliable system written in an obscure fourth-generation language is completely without support. As a result, managers would decide whether to modernize the system, rewrite it or train someone in the language so he can provide the needed support.

Job profiles. Formal job descriptions are almost mandatory at most organizations, but they are often underused — even for their intended purpose. Once hired, many programmers and analysts never see a formal job description; convention makes it acceptable to work without one.

As a means of identifying training needs, job descriptions are vital. They indicate the skills an individual needs in his current position and make it easier to plan for career advancement. If someone aspires to a position that requires additional skills, learning about them via a job description might prompt him to ask for the proper training.

Trade journals. The traditional needs analysis typically identifies what training is required. However, identifying how to deliver the training is an essential part of the process too. Professional journals for trainers and educators tend to focus on the "how" of training by covering the latest in technologies, delivery techniques and methods of measuring effectiveness.

Networking. It's legitimate and almost essential to "keep your eyes on the other guys." Training professionals should network with people from other organizations to learn about their training and education needs and how their organizations are handling them. Conferences, vendor seminars and local professional associations all afford ample opportunity for tapping information from peers.

In an era of tightening corporate budgets, education and training are still the areas most susceptible to untimely cuts. If IS organizations are to get the most out of the time and money available, they must identify their training needs in a comprehensive way. They should use the traditional needs analysis — but only as one of many means of accomplishing the goal.

Duncan is a quality assurance manager at a large Dallas bank.

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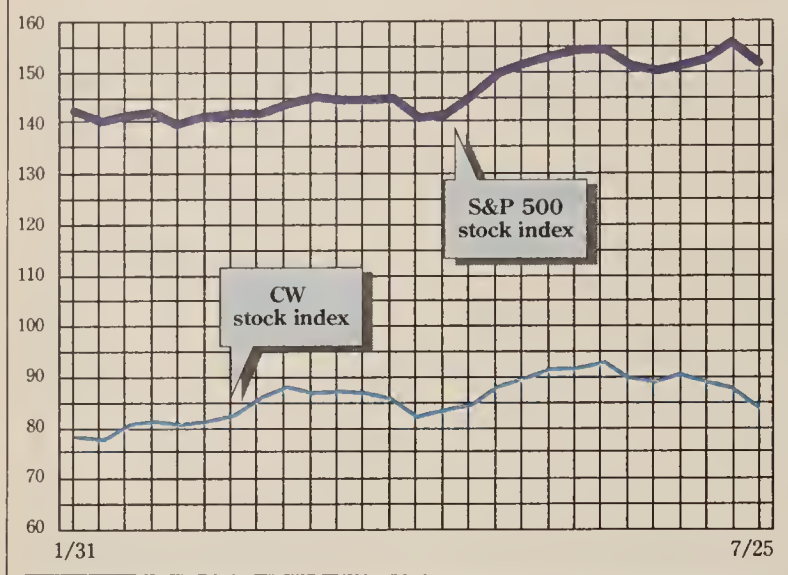

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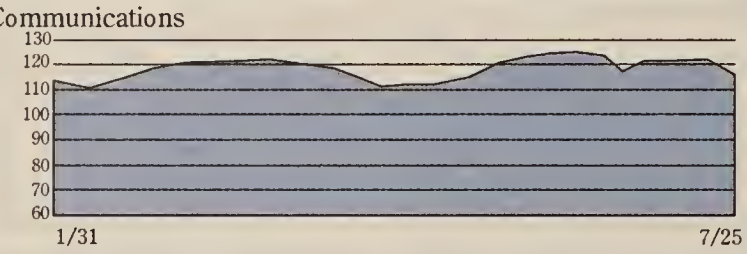

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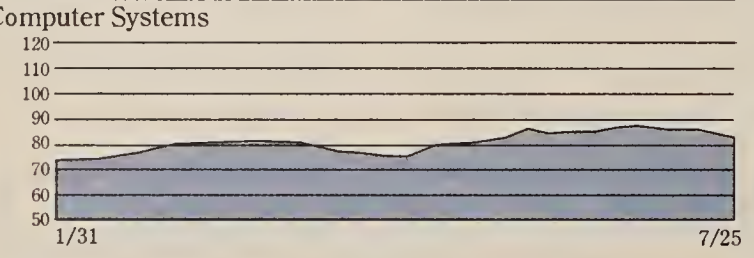

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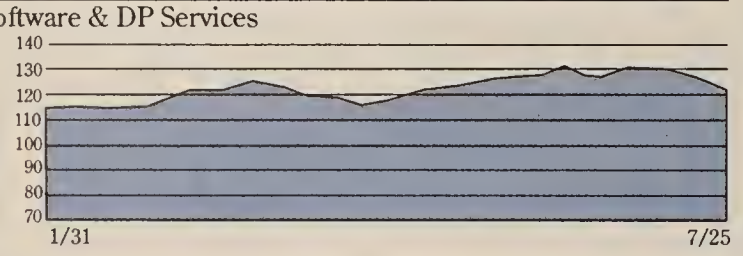

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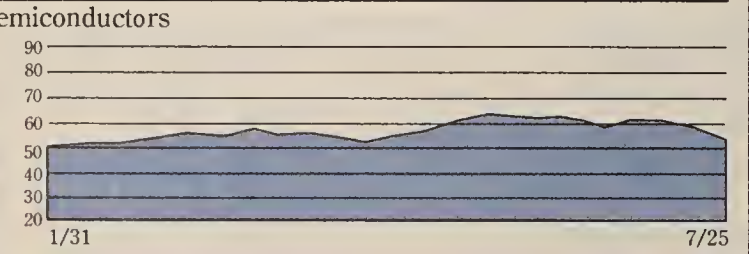

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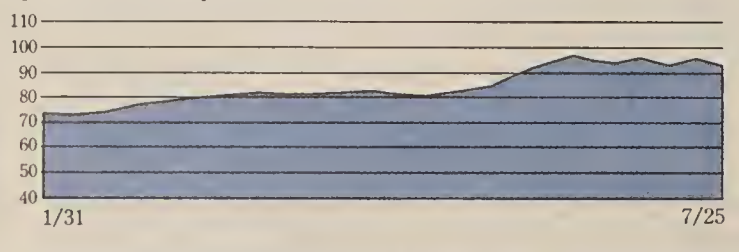
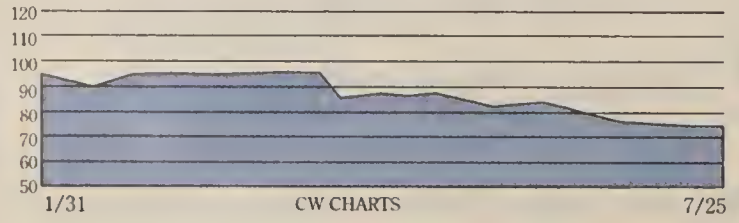


Leasing Companies



CW CHARTS

Computerworld Stock Trading Summary

CLOSING PRICES WEDNESDAY, JULY 25, 1990

EXCH		52-WEEK RANGE		CLOSE JULY 25, 1990	WEEK NET CHNGE	WEEK PCT CHNGE
	Communications and Network Services					
N	AMERICAN INFO TECHS CORP	68	55	58.375	-1.8	-2.9
Q	ANDREW CORP	26	19	21.5	-0.5	-2.3
Q	ARTEL COMM CORP	10	4	4.25	-0.4	-8.1
N	AT&T	47	36	37.375	0.3	0.7
Q	AVANTEK INC	7	2	3	-0.3	-7.7
N	AYDIN CORP	21	13	13.5	-1.0	-6.9
N	BELL ATLANTIC CORP	57	43	47.375	2.0	4.4
N	BELLSOUTH CORP	59	49	52.125	-0.4	-0.7
Q	COMPRESSION LABS INC	16	7	14.875	0.9	6.3
Q	CONTEL CORP	37	23	32.75	-0.5	-1.5
Q	DATA SWITCH CORP	4	2	3.5	0.0	0.0
Q	DIGITAL COMM ASSOC	27	17	23.25	-2.3	-8.8
Q	DYNATECH CORP	21	15	18.125	1.9	11.5
Q	FIBRONICS INTNL INC	13	5	11.125	-0.6	-5.3
Q	GANDALF TECHNOLOGIES	7	2	3.313	-0.1	-1.8
N	GENERAL DATACOMM INDS	7	3	3.625	-0.4	-9.4
N	GTE CORP	36	28	28.125	0.3	0.9
Q	INFOTRON SYS CORP	11	3	3.125	-0.4	-10.7
N	ITT CORP	65	51	58	-0.6	-1.1
N	M A COM INC	8	3	4.625	-0.3	-5.1
Q	MCI COMMUNICATIONS CORP	49	31	38	1.5	4.1
N	NETWORK EQUIP TECH INC	34	8	7.75	-1.0	-11.4
Q	NETWORK SYS CORP	15	7	11.875	-2.8	-18.8
N	NORTHERN TELECOM LTD	30	20	26.25	-2.1	-7.5
Q	NOVELL INC	59	24	49.25	-5.8	-10.5
N	NYNEX CORP	92	74	75	-3.1	-4.0
N	PACIFIC TELESIS GROUP	52	40	41.5	-1.6	-3.8
A	PENRIL CORP	9	4	7.875	-0.8	-8.7
N	SCIENTIFIC ATLANTA INC	29	19	27.75	-0.6	-2.2
N	SOUTHWESTERN BELL CORP	65	51	52.125	-1.8	-3.2
Q	3 COM CORP	19	10	16.375	-0.8	-4.4
N	U S WEST INC	41	33	35.5	-0.8	-2.1
	Computer Systems					
Q	ALLIANT COMPUTER SYS	9	4	4.375	-1.1	-20.5
Q	ALPHA MICROSYSTEMS	8	2	2.625	0.3	10.5
Q	ALTOS COMPUTER SYS	8	5	8.25	0.0	0.0
A	AMDAHL CORP	19	11	16.75	-1.0	-5.6
Q	APPLE COMPUTER INC	50	32	42.25	-2.4	-5.3
Q	AST RESH INC	26	7	22.625	-2.9	-11.3
N	BOLT BERANEK & NEWMAN	9	4	4.625	-0.3	-5.1
N	COMPAQ COMPUTER CORP	68	37	59.375	-5.0	-7.8
N	COMMODORE INTNL	12	6	7	-0.3	-3.4
N	CONTROL DATA CORP	22	16	16.875	-2.1	-11.2
N	CRAY RESH INC	51	31	45	-2.6	-5.5
N	DATA GEN CORP	18	8	8.875	-1.1	-11.3
N	DATAPOINT CORP	6	2	2.125	-0.3	-10.5
Q	DELL COMPUTER CORP	14	5	11.75	-1.3	-9.6
N	DIGITAL EQUIP CORP	103	70	74.875	-8.6	-10.3
N	FLOATING POINT SYS INC	4	0	2.5	-0.1	-4.8
N	HARRIS CORP	40	28	32.75	-1.4	-4.0
N	HEWLETT PACKARD CO	58	40	45.125	-2.4	-5.0
N	HONEYWELL INC	112	73	104	-5.6	-5.1
N	IBM	123	93	114.75	-5.1	-4.3
Q	INFORMATION INTL INC	16	12	13	-0.3	-1.9
Q	IPL SYS INC	14	5	10.25	-1.5	-12.8
N	MAI BASIC FOUR INC	6	2	2	0.1	6.7
N	MATSUSHITA ELEC INDL LTD	180	123	140	-7.7	-5.2
Q	MENTOR GRAPHICS CORP	26	14	16.75	-1.0	-5.6
N	NBI INC	2	0	0.313	0.0	11.4
N	NCR CORP	72	55	69	-1.9	-2.6
Q	PYRAMID TECHNOLOGY	36	11	25	-4.3	-14.5
Q	SEQUENT COMP SYS INC	34	13	29	-1.5	-4.9
Q	SUN MICROSYSTEM INC	37	13	33.5	-1.3	-3.6
Q	SYMBOLICS INC	2	0	0.438	-0.1	-12.4
N	TANDEM COMPUTERS INC	30	18	19.25	-2.3	-10.5
N	TANDY CORP	49	30	36.375	-2.5	-6.4
N	ULTIMATE CORP	11	5	7.125	0.1	1.8
N	UNISYS CORP	23	11	11.875	-0.8	-5.9
A	WANG LABS INC	7	4	4.125	-0.1	-2.9
	Software & DP Services					
Q	AMERICAN MGMT SYS INC	20	11	17.25	-1.6	-8.6
Q	AMERICAN SOFTWARE INC	18	9	15.125	-7.9	-34.2
N	ANACOMP INC	7	2	2.5	-0.1	-4.8
Q	ANALYSTS INTL CORP	24	14	20	-1.5	-7.0
Q	ASHTON TATE	16	8	10.5	0.1	1.2
Q	ASK COMPUTER SYS INC	15	7	10	0.8	8.1
N	AUTO DATA PROCESSING	60	40	55	-4.0	-6.8
Q	AUTODESK INC	60	33	53.375	-4.1	-7.2
Q	BMC SOFTWARE INC	30	14	26	-1.0	-3.7
N	BUSINESSLAND INC	14	7	7.25	-0.4	-4.9
Q	COGNOS INC	10	4	9.75	0.3	2.6
N	COMPUTER ASSOC INTL INC	20	8	9.5	0.0	0.0
Q	COMPUTER HORIZONS CORP	17	7	16.25	-0.5	-3.0
N	COMPUTER SCIENCES CORP	59	40	43.5	-0.5	-1.1
N	COMPUTER TASK GROUP INC	14	9	10.5	0.3	2.4
Q	COMSHARE INC	25	15	21.75	-1.0	-4.4
Q	CORPORATE SOFTWARE	16	8	14.125	-1.1	-7.4
N	GENERAL MTRS (CLS E)	38	24	33.75	-2.3	-6.3
Q	GOAL SYSTEMS INTL	18	10	15	0.0	0.0
Q	HOGAN SYS INC	7	3	3.375	-0.5	-12.9
Q	INFORMIX CORP	18	8	11.125	-3.5	-23.9
Q	INTELLICORP INC	8	3	5.125	-0.4	-6.8
Q	LEGENT CORP	32	19	24.75	0.0	0.0
Q	LOTUS DEV CORP	39	21	23	-8.3	-26.4
Q	MICROSOFT CORP	81	26	71.5	-4.5	-5.9
Q	NATIONAL DATA CORP	35	13	14	-0.3	-1.8
N	ON LINE SOFTWARE INTL INC	11	6	7.5	-0.8	-9.1
Q	ORACLE SYS CORP	188	15	17.625	-0.1	-0.7
N	PANSOPHIC SYS INC	19	10	12.875	-0.3	-1.9
Q	PHOENIX TECHNOLOGIES INC	6	2	3.5	-0.5	-12.5
N	POLICY MGMT SYS CORP	43	30	43.375	0.0	0.0
Q	PROGRAMMING & SYS INC	25	16	19	-3.0	-13.6
Q	RELATIONAL TECH INC	11	5	5.5	-0.3	-4.3
N	REYNOLDS & REYNOLDS CO	27	19	20.25	-0.6	-3.0
Q	SAGE SOFTWARE INC	16	7	14.5	-0.8	-4.9
Q	SEI CORP	22	15	22	1.5	7.3
Q	SHARED MED SYS CORP	17	12	12.875	0.0	0.0
Q	SOFTWARE PUBG CORP	28	13	26.75	-0.3	-0.9
N	STERLING SOFTWARE INC	11	7	9.25	-1.1	-10.8
Q	SUNGARD DATA SYS INC	26	17	23.75	-1.5	-5.9
N	SYSTEM CENTER INC	25	17	17	-0.4	-2.2
N	SYS. SOFT INC	29	15	25	-0.3	-1.0
Q	WORDSTAR	2	1	1.063	0.0	0.0
	Semiconductors					
N	ADV MICRO DEVICES INC	11	7	7.25	-1.9	-20.5
N	ANALOG DEVICES INC	11	7	6.875	-0.4	-5.2
Q	ANALOGIC CORP	11	8	9.25	-0.1	-1.3
Q	CHIPS & TECHNOLOGIES INC	26	15	16.25	-3.3	-16.7
Q	INTEL CORP	52	28	43.5	-5.0	-10.3
Q	MICRON TECHNOLOGY INC	17	7	11.625	-0.4	-3.1
N	MOTOROLA INC	88	53	79.75	-6.1	-7.1
N	NATL SEMICONDUCTOR	9	5	5.5	-1.4	-20.0
N	TEXAS INSTRS INC	44	28	33.25	-5.6	-14.5
A	WESTERN DIGITAL CORP	15	6	12.25	-1.1	-8.4
	Peripherals					
Q	ALLOY COMP	2	0	0.626	-0.1	-9.0
N	AM INTL INC	6	2	2.25	-0.3	-10.0
Q	AUTO TROL TECH CORP	5	2	3.063	-0.3	-9.2
Q	BANCTEC INC	24	13	20.25	-1.5	-6.9
A	COGNITRONICS CORP	8	3	6.5	0.8	13.0
Q	CONNER PERIPHERALS	31	10	27.875	-2.4	-7.9
A	DATARAM CORP	22	8	18.75	-1.0	-5.1
N	EASTMAN KODAK CO	52	36	38.5	-2.3	-5.5
N	E M C CORP MASS	7	3	5.625	-0.5	-8.2
Q	EMULEX CORP	9	4	7	-1.0	-12.5
Q	EVANS & SUTHERLAND	35	18	29.25	0.8	2.6
Q	ICOT CORP	2	1	1.5	0.0	0.0
Q	INTERLEAF INC	8	5	6.125	-0.6	-9.3
Q	IOMEGA CORP	6	3	5.25	-0.4	-7.7
Q	MASSTOR SYS CORP	4	1	1.188	-0.1	-9.5
Q	MAXTOR CORP	17	7	10.25	-4.1	-28.7
Q	MICROPOLIS CORP	10	3	8.5	-1.6	-16.0
N	MINNESOTA MNG & MFG CO	91	68	90.875	1.1	1.3
Q	PERSONAL COMP PRODUCTS INC	5	4	4.25	0.2	4.6
Q	PRINTRONIX INC	15	7	11.375	-0.4	-3.2
N	QMS INC	21	9	18.25	-0.9	-4.6
Q	QUANTUM CORP	26	9	22.375	-2.1	-8.7
N	RECOGNITION EQUIP INC	10	4	5.125	-0.1	-2.4
Q	REXON INC	10	6	7.375	0.0	0.0
Q	SEAGATE TECHNOLOGY	20	10	12.5	-1.8	-12.3
N	STORAGE TECH CORP	35	9	27.125	-7.4	-21.4
Q	TANDON CORP	4	1	2.813	-0.5	-15.1
N	TEKTRONIX INC	23	12	16.25	0.1	0.8
Q	TELEVIDEO SYS INC	1	0	0.406	0.0	8.3
N	XEROX CORP	69	44	45.625	-2.3	-4.7
	Leasing Companies					
N	CAPITAL ASSOC INTNL INC	8	2	2.375	-0.4	-13.6
N	COMDISCO INC	34	17	18.375	0.0	0.0
Q	LOI CORPORATION	18	13	15.25	0.0	0.0
Q	PHOENIX AMERN INC	5	3	3.625	-0.1	-1.7

EXCH: N=NEW YORK; A=AMERICAN; Q=NATIONAL

Bad reviews

Positive earnings reports were not enough for Wall St. critics

Earnings Time: The Sequel played to packed trading floors last week but garnered a big thumbs-down from technology investors. Digital Equipment Corp. held center stage after announcing its first quarterly loss ever. Although it started to rebound at the end of the week, DEC stock still dropped a total of 5 points, closing Thursday at 76⅛. IBM was not far behind, losing 4½ points to hit 113⅛.

After hearing of the company's big quarterly loss, investors dumped Data General Corp., and its share price slid to 7⅞, down 1½ points.

Some stocks fizzled even after firms such as Microsoft Corp. turned in star performances for the quarter. Microsoft may have made great profit strides, but its stock fell 4½ points to 68¾ after bleak projections for next year's earnings. Compaq Computer Corp. was an enigma. After issuing both positive financials and new personal computers, Compaq stock still crashed to 57⅞, down 2⅜ points. A new mainframe did not help Unisys Corp. either, which slipped ¼ of a point to 11⅞.

When the spotlight shone on Apple Computer, Inc. and Sun Microsystems, Inc., however, they rose to the occasion, albeit slightly. Each gained ⅜ of a point, lifting Apple to 41⅜ and Sun to 32⅝.

Storage Technology Corp. showed real star quality, overcoming disappointing profit news and picking up 2¼ points to finish at 28. In what may be a preview of earnings statements yet to come, Wang Laboratories, Inc. Class B stock eased down ⅛ of a point to 3⅞, hovering just above its 52-week low.

KIM S. NASH

NEWS SHORTS

Infonet to go international

Infonet is expected to announce this week what is reportedly the first virtual private data network service to be offered internationally. Virtual Private Data Network is said to allow users to enjoy the advantages of a private T1 backbone without having to pay the personnel, maintenance and equipment costs associated with a private network. Offered in both star and mesh topologies, the service includes daily, weekly and monthly facsimile reports of network traffic statistics and trouble ticket status. Users can transmit at rates of up to 19.2K bit/sec. Infonet currently has T1 nodes in about 15 countries, with plans to expand in Asia, the vendor said.

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Amadeus pact is music to Bytex

Bytex Corp. announced last week that Amadeus, the European reservation system consortium, has awarded the matrix switch vendor a $1.4 million contract to install its Unity 50 Network Switching Systems in sites in four countries. Fault-tolerant matrix switches like those offered by Bytex are generally used as "insurance policies" in mission-critical environments. If a front-end processor on a mainframe should fail, one command to the matrix switch would allow several communications lines to be switched to a backup front-end processor.

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CA enhances manufacturing system

Computer Associates International, Inc. has upgraded its CA-CAS/R manufacturing software. Version 1.3, for IBM mainframes, allows companies to build repetitive products on a schedule. Enhancements include on-line electronic mail, on-line help, multilingual screen functions and common report writers.

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DEC claims benchmark win

Digital Equipment Corp. last week announced benchmark results that claimed superior performance for its new Decstation 5000 against comparably priced Unix-based workstations from IBM and Sun Microsystems, Inc. DEC measured the $26,900 Decstation 5000 Model 200CX against Sun's $20,195 Sparcstation 4/65, and claimed its own workstation had twice the overall performance of the Sun workstation and 1.4 times the performance of IBM's Powerstations 320 and 520, priced at $24,090 and $35,340, respectively.

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TI ready to ship CASE tools for OS/2

Texas Instruments said last week it would begin shipping the first commerical release of its computer-aided software engineering products for OS/2 on Aug. 22. With a workstation running OS/2, programmers can develop and test applications using the Information Engineering Facility (IEF) Construction Toolset for OS/2 and then move them to the host-based IEF Central Encyclopedia for MVS, where CICS, IBM, TSO and batch codes will be reconstructed and placed into production. The complete OS/2 package, including Planning, Analysis, Design and Construction Toolsets, lists for $23,800; the Construction Toolset, which generates COBOL, source code and relational database definition statements, sells for $9,900. According to TI, customers will be able to upgrade from the MS-DOS to the OS/2 version of IEF at a special price for a limited time.

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Sears loses federal pact

A federal appeals board last week threw out a contract to buy IBM and Apple Computer, Inc. personal computers and related software and networking products awarded in May by the U.S. Treasury Department to Sears, Roebuck and Co. The award, worth up to $400 million and Sears' first big government computer win, stunned more experienced government contractors, two of whom filed formal protests. The board agreed that equipment bid by Sears did not meet government specifications as claimed by Sears. Earlier this month, Sears sued bid-protester Sysorex Information Systems, Inc. for allegedly stealing Sears trade secrets used in the bid protest.

Novell simplifies Lanalyzer

BY JOANIE M. WEXLER
CW STAFF

SAN JOSE, Calif. — With the potential for network snafus increasing in direct proportion to the proliferation of local-area networks, Novell, Inc. said it will introduce today a version of its Lanalyzer protocol analyzer designed for the less technically savvy network manager.

A protocol analyzer provides a network administrator with a description of what is happening at the various "layers" of a communications system. It then helps the administrator locate and resolve network problems.

Novell's product — part of the dowry Novell received when it acquired Excelan, Inc. one year ago — is designed to analyze Ethernet or token-ring LANs running protocols such as Novell's Netware, Apple Computer, Inc.'s Appletalk, Digital Equipment Corp.'s Decnet and Transmission Control Protocol/Internet Protocol.

Novell will now add the Application Test Suite, a spreadsheet-like feature that automatically runs more than 40 preprogrammed application tests. A menu-driven troubleshooting guide leads users through the testing process by suggesting — in English — probable causes for network disruptions and then recommending the test procedures to confirm a diagnosis.

"This is a really good feature because it will tell network administrators what might be wrong and what to try next. Otherwise, it takes a lot of expertise — that's tough to develop — to figure it out," said Greg Drusdow, director of information services at Agency Company Organization for Research and Development Corp., a not-for-profit association running a 32-node Novell network.

Technically impractical

One problem with protocol analysis is that it has traditionally been a task reserved for highly technical personnel. This is becoming less practical as LANs proliferate.

"Typically, an organization will have one or two network gurus, but the majority of the day-to-day work is done by a nonexpert," explained Kevin White, vice-president of product development at Novell's Lanalyzer products division. "We're aiming our product at that user."

Drusdow, who is also the president of Netware Users International-North America, said, "I saw a beta version of [Lanalyzer] at PC Expo, and it's definitely a breatkthrough. It ought to reduce start-up and training time, which is where it leapfrogs Network General's Sniffer."

Network General Corp.'s Sniffer Network Analyzer, Lanalyzer's main competitor, takes a more top-down approach, emphasizing analysis of upper layer communications protocols, while Novell's offers fuller analysis at the physical layers.

"While Sniffer is undoubtedly an excellent product for high-tech engineers and applications developers, business users experience more lower-level problems," Drusdow said.

He explained that before purchasing Lanalyzer, he rented the Sniffer analyzer, but it "told us information about our network that we couldn't understand."

Tom Nolle, president of CIMI Corp., a consultancy in Haddonfield, N.J., agreed that a common problem with protocol analyzers has been "that they tell you what's wrong with the protocols but not what you can do about it."

Nolle added that less than 1% of all LANs are currently analyzed. However, he predicted that use of protocol analyzers will expand to 7% to 8% of all LANs during the next two years.

Nixon

FROM PAGE 1

thought about the night before a major battle."

Visitors ask Nixon questions via computer and get answers on a big-screen television set. The 400 most commonly asked questions about Nixon's life and political fortunes have been programmed into computers with his videotaped responses ready to appear.

Hugh Hewitt, executive director of the $21 million library, said 320 questions were culled from tapes from Nixon's many TV appearances, with 80 more questions dreamed up by presidential scholars and put to him in the past few months.

The screen clips come from interviews he did with a former speechwriter shortly after leaving office, and the TV clips come from interviews such as the ones he did on *The David Frost Show*, as well as a session filmed just two months ago.

Twenty-two categories are offered, including Nixon's years in Congress, the Vietnam War and Watergate. Using a touch-screen monitor, a category is selected, such as the Soviet Union. The system offers up to three levels of subcategories (Salt I, Detente, Salt II and so on) until the closest question is hit.

The system maintains a queue that includes the length of each response in waiting, then states the amount of time it will take to hear the answer. The user steps into the 40-seat theater to listen to Nixon's response on a 45-in. screen.

Answers are provided via a combination of five Intel Corp. 80386-based IBM-compatible personal computers running customized software and linked to 10 Pioneer Electronic Corp. laser disc players. The master computer selects the narration of the questions from one of the laser disc players. A videodisc computer locates the appropriate disc player, and the video is routed through a switching system to a 45-in. video projector/screen combination.

TWENTY-TWO CATEGORIES are offered, including Nixon's years in Congress, the Vietnam War and Watergate.

The atmosphere within the theater is that of a running press conference. A narrator's voice introduces the question, accompanied by an LED display of the question at the top of the viewing screen. Nixon then responds in his classic baritone.

The questions span a broad range: his opinion of Watergate ("Wrong, illegal and very stupidly handled"), his first memory (falling out of a buckboard and cracking open his head), which losing presidential candidates would have made good leaders ("Tom Dewey of New York and John Connolly of Texas"), how he spent his last evening with Henry Kissinger (drinking Cour-voisier) and what it was like meeting Elvis ("a very shy and sincere man who used flamboyance to cover that up").

Kalb said that although some in the Nixon camp were aware that they would have to deal with sensitive political issues, "we were able to entertain just about any kind of question. I can't think of one question where he said 'I won't answer that.' "

So long as Nixon, 77, is alive, new questions and answers will be added. The system can hold more than three times the amount of responses it now contains, which represents more than five hours of interview time. "With Nixon, there's always a lot to talk about," Kalb added.

A mixed bag for U.S. high tech

Policy Project analysis of 16 vital technologies sees good and bad

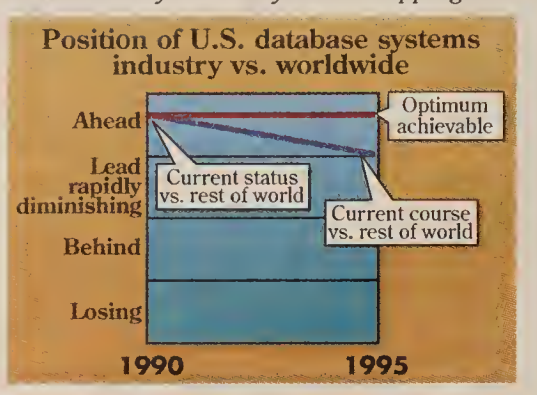
BY MITCH BETTS
CW STAFF

WASHINGTON, D.C. — The chief technologists of the computer industry, making their first contribution to the nation's debate over technology policy, issued a report last week analyzing the 16 technologies critical to the future of the U.S. computer industry.

There is good news and bad news for the U.S. The bad news, according to the report by the Computer Systems Policy Project (CSPP), is that the U.S. is lagging in capital-intensive technologies such as integrated circuit fabrication, microelectronics and manufacturing. In the field of computer displays, the U.S. is well behind the rest of the world, and based on its current course, will be losing badly by 1995, the report added.

Storm warning

While foreign competition has tended to focus on components, executives say the U.S. lead in database systems may also be slipping



Source: Computer Systems Policy Project
CW Chart: Paul Mock

The good news, the technologists said, is that the U.S. has the lead in technologies that stress human creativity and are not capital-intensive, such as processor architectures and several areas of software technology. But even in those categories, the U.S. lead is "rapidly diminishing," the report said.

The conclusions are remarkably similar to reports issued by the U.S. Departments of Commerce and Defense, which have provided ammunition to members of Congress who want to beef up federal programs aiding high-technology industries [CW, June 25].

CSPP was formed one year ago by 11 industry chief executives — led by John Akers of IBM, John Young of Hewlett-Packard Co. and James Treybig of Tandem Computers, Inc. — to lobby the government on technology and trade policy [CW, July 3, 1989].

The next step in CSPP's project is to issue, by the end of 1990, specific recommendations for changes in government policy. Kenneth R. Kay, executive director of the group, hinted that the policy proposals are likely to fall into the areas of education, applied research and development and capital formation.

Kay said the report's most important addition to the competitiveness debate is that it identifies the critical success factors, such as advanced manufacturing techniques and skilled personnel, for each of the computer technologies.

Instead of asking the government to "fix" one or two specific technologies — which is vehemently opposed by the Bush administration — CSPP will be asking the government to address critical success factors that cut across many technologies and industries, Kay said.

At a press conference, John Young, chairman of CSPP and chief executive officer at HP, acknowledged that the report contains few surprises. However, he said it is part of CSPP's effort to build a case with "specific actionable items" that are compelling enough to result in policy changes.

"What I find difficult is to find the will and interest [among policymakers] to attack old problems," Young said.

The CSPP report, compiled by the chief technology officers at each of the member firms, comes at a time when the U.S. computer industry is under intense pressure from foreign competition. While U.S. companies' share of the world computer systems market fell from 81% to 61% between 1983 and 1989, Japan's share rose from 8% to 22%, and Europe's share grew from 10% to 15%.

Smith: The shape of DEC to come?

BY GLENN RIFKIN
and MARYFRAN JOHNSON
CW STAFF

On perhaps the darkest day in Digital Equipment Corp.'s history — when it was forced to announce its first quarterly loss in 33 years — the man stepping into the media spotlight was not the one everyone expected.

DEC President Kenneth H. Olsen stayed quietly on the sidelines, while Jack Smith, his second-in-command and senior vice-president of operations, played a competent game of verbal tennis with the press.

"No one should read any significance into that," Smith insisted later in an interview with *Computerworld*. "I just happened to be available."

Commanding presence

Yet there is no denying that the 55-year-old Smith, who has been working at DEC since 1958, is now responsible for virtually all of the company's day-to-day activities.

No one in DEC history has ever been granted such vast responsibility by Olsen, fueling speculation that the personable, easygoing Smith will one day lead the company.

"Jack Smith will come out of this a hero," said Stephen Smith, an analyst at Paine Webber, Inc. in New York. "He's in a great position when things turn around. He has a huge and loyal customer base, and the technology is in place."

Talk of him as the heir apparent, however, makes Smith visibly uncomfortable. "Terms like that, we don't use inside the company," he explained. "The successor to Ken Olsen, whoever that may be, is the board of directors' responsibility. They don't talk about it to me."

Peter Schay, an analyst at Gartner Group, Inc. in Stamford, Conn., said he views Smith as a strong operating manager "but not particularly a visionary or a strategist.

"DEC has fundamentally been successful because it has superior technology," Schay said. "While you need a CEO who understands the role of marketing, perhaps better than Ken Olsen has, the company needs a replacement who will be a visionary, strategist type of person."

In the meantime, DEC is slowly reshaping its internal organization into 24 individual business units — with each unit's vice-president reporting to Smith. Unit managers have the power to hire and fire, but they are also directly responsible for profits and losses.

Good product managers, Smith said, are the ones who "learn to deliver the revenues."

That is the kind of talk that makes Wall Street glow with approval for Jack Smith.

"The spotlight is on Smith, where it ought to be," said Byron Walker, an analyst at Moody's Investors Service in New York. "It's worth something to your stock and your market credibility to have the proper persona out there dealing with the press and the analysts."

For his part, Smith seems to be ignoring all the sound and fury about succession.

"I don't see my relationship with Ken [Olsen] as any different now than it was 10 years ago," he said.

"I'm very comfortable doing what I'm doing. I understand what has to be done, and I'm going to go do it. History will take care of itself."

"I DON'T SEE my relationship with Ken [Olsen] as any different now than it was 10 years ago."

JACK SMITH
DEC

DEC

CONTINUED FROM PAGE 1

strong. We understand what the problems are and what we have to do about them."

Some of DEC's large customers agreed with that view, and industry analysts generally applauded the Maynard, Mass.-based firm's bite-the-bullet approach to cutting thousands of staff members.

Stephen Smith, an analyst at Paine Webber, Inc. in New York, said a personnel cut should translate into $2 to $3 per share in cost savings. "I think that unless the economy totally falls apart, that will be enough," he said.

"The profitability problems are the result of DEC getting flabby, a lot of price pressure and the generally competitive pressure of the marketplace," added Peter Schay, an analyst at Gartner Group, Inc. in Stamford, Conn. "This is a good step for DEC in the long term. This is a one quarter event, and its customers are not going to be deterred because of it."

"I suspect they are doing what they have to do. I don't view it with alarm," said William Anderson, chief information officer at Prudential-Bache Securities, Inc. in New York. Anderson said he was confident that DEC would not cut its field engineering or support services.

Mohammed Mosaad, senior vice-president of information systems and telecommunications services at Prudential-Bache, added that customers "would always prefer our vendor to make money and prosper."

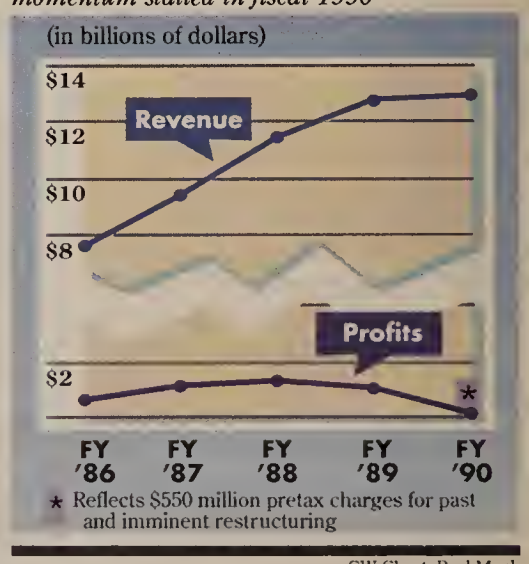
"But it's tough competition today," Mosaad said. "DEC probably has more competition than anyone else, and it's also the economy: People are not buying as much."

DEC's recovery strategy is to cut operational costs and increase revenue, with an influx of profits expected from upcoming sales of the mainframe VAX 9000. Smith said 100 VAX 9000s will be installed at customer sites during the next few months, delivering about $200 million to the bottom line during what is usually DEC's weakest financial quarter of the year.

"Maybe this is DEC's darkest day from an earnings standpoint," said Byron Walker, an analyst at Moody's Investors Service in New York, which knocked DEC's credit rating down one notch from its top rating of AAA last week. "But the company is getting its product line in shape, getting salespeople behind the program, straightening out senior management and finally rationalizing how to sell open systems in proprietary environments. There are a lot of pluses there."

Signs of strain

After heady growth in the late 1980s, DEC's momentum stalled in fiscal 1990



CW Chart: Paul Mock

Federal groups urge openness

BY GARY H. ANTHES
CW STAFF

WASHINGTON, D.C. — Two government advisory units have called on federal agencies to give businesses and individuals greater access to the U.S. government's vast databases of public information.

The U.S. Congress' Office of Technology Assessment (OTA) said agencies need to resolve several policy issues and exploit technologies such as on-line information networks, compact discs and electronic publishing to disseminate scientific and technical data.

Independently, the 15-member U.S. National Commission on Libraries and Information Science unanimously approved an "Information Age Bill of Rights" to serve as a guideline for the government and industry in developing information policies (see story this page). The statement, developed after a year of study and two public hearings, is based on the principle that public information is owned by the people and held in trust by the government.

An OTA report criticized the government in general, and the White House in particular, for not doing more to distribute the information from $65 billion in annual spending on federal research and development. The congressional agency called on the government to foster the establishment of low-cost, user-friendly electronic databases and distribution media for information in areas such as earth and space sciences and energy.

The OTA said the government is missing an opportunity to bolster U.S. high-technology competitiveness in part because the Office of Science and Technology Policy (OSTP) has "failed in its mission" to provide leadership in furnishing access to scientific and technical information.

The OSTP has failed to implement a provision of a 1976 law calling for it to improve the flow of government information to the private sector, the OTA said.

The OTA said success of a public information program requires progress in the following areas:

- Technical standards for databases and documents so that information can be easily moved to users.
- Indexing databases and documents so that users can easily find information.
- Increased funding to ensure quality, storage and dissemination of technical and scientific information.
- User involvement to ensure that federal agencies meet user needs and technical capabilities.

Some critics of the report said there is already far more federal information available than is put to good use.

"Scientific and technical information in general is the weakest form of technical transfer in the U.S. The only ones who make use of it are the Japanese," said C. Gordon Bell, chief scientist at Stardent Computer, Inc. and former director of computer science programs at the National Science Foundation. "If the government were any better than it is, it would only help the Japanese."

Addressing the Japanese issue, Fred B. Wood, a senior associate at the OTA, said, "Yes, that's a risk, but you have to take some risks if you want to be competitive. I'd like to sit down with [White House Chief of Staff John] Sununu and say, 'You're taking heat about industrial policy. Here's an opportunity to do something good for the U.S. without having to pick winners and losers.' "

John Lorenz, acting executive director of the U.S. National Commission on Libraries and Information Science, said the statement on public information is not a blueprint for action. "But we want to lay a groundwork — we want the principles to be there when others plan improved access [to public information] based on more complicated technology," he said.

A call for rights

The U.S. National Commission on Libraries and Information Sciences recommends that the federal government should do the following:

- Guarantee the availability of public information.
- Guarantee the integrity and preservation of public information.
- Safeguard the privacy of information users and people on whom information is maintained.
- Ensure a wide variety of sources and methods of access to public information.
- Refuse to allow cost to hinder access to public information.
- Ensure that information is readily found through use of a single catalog or index.
- Facilitate widespread geographic access to information through national networks and other means.

Source: U.S. National Commission on Libraries and Information Science

Unisys entries don't relax financial scrutiny

BY ELLIS BOOKER
CW STAFF

BLUE BELL, Pa. — Unisys Corp. unwrapped a new mainframe line, upgraded some others and launched a departmental-level version of its 2200 mainframe last week, but the hoopla was not enough to distract some users from the financial troubles of the nation's third largest computer company.

A week earlier, Unisys posted a 78% drop in earnings for the second quarter ended June 30, with net income of $11.8 million compared with $53.6 million in the corresponding quarter one year ago [CW, July 23]. Although citing weak U.S. sales for the drop, Unisys said operating income had improved, up from $86 million to more than $100 million for the quarter, and net income in the second quarter was positive against a small loss in the first quarter.

Joe Dale, president of Formula Consultants, Inc., an Anaheim, Calif., Unisys systems software developer, said, "The numbers are disappointing to Wall Street and investors, [but] I believe the customer base is looking at other things . . . they're in the frame of mind to give Unisys another quarter or two to straighten things out."

Dale also said Unisys' attitude toward third-party hardware and software developers had improved significantly in the past few months. Formula Consultants is a beta-test site for the new Unisys 2200/100 and is using the departmental-level processor as a test and applications development platform.

However, better customer relations and new technology have not offset the worries of Duquesne University in Pittsburgh, which is migrating from its Unisys 1100 mainframe to a Unisys-marketed Sequent host.

"Rather than go with another Unisys box, it seemed to make more sense to go through them to another hardware vendor," said Linda Barner-West, director of communications and information technology.

Unisys introduced three new series of mainframes last week. Leading the pack is the A16, which Unisys said is the first mainframe to incorporate Motorola, Inc.'s latest high-density gate array chip. The five A16 models span the upper half of Unisys' A series line and cost from $1.7 million to $5.9 million [CW, July 23].

Unisys also unveiled six models of the 2200/600 Evolutionary System that give users 15% more performance and a 60% reduction in power and cooling requirements over the existing 2200/600 models. The 600ES versions range in price from $2.3 million for a one-processor model to $8.8 million for the four-processor model.

The departmental system, the 2200/100, will "allow users to add new site-specific applications or offload applications from a central DBMS," said Dennis Kosinski, vice-president of mainframe program management at the Unisys Computer Systems Products Group. The 2200/100 ranges in price from $115,000 to $200,000.

Unisys also unveiled four new models of its A12 mainframe that are field-upgradable to the top-of-the-line A17. The new A12s range in price from $495,000 to $2.4 million.

BART computer systems should work OK, panel says

BY J. A. SAVAGE
CW STAFF

OAKLAND, Calif. — Despite being over budget, overdue and obsolete in its hardware, a computer system that will run the Bay Area Rapid Transit (BART) trains should perform to minimum expectations, according to a blue ribbon panel report issued to BART's board of directors.

Embroiled in politics, the $42 million Integrated Control System was designed by Logica Data Architects, Inc., based in Waltham, Mass., to handle 64 trains. However, the BART board refused to pay Logica a fixed price of $1.1 million late last year to finish the system because the board said the system was supposed to be designed for a future capacity of 74 trains, not 64. Logica had been paid approximately $19 million for its work.

The outside panel, headed by Paul Bassily, assistant general manager of operations at the Washington, D.C., transit system, told the board that when the system is completed at an additional cost of $2.5 million, it should be able to handle the current minimum load of 55 trains.

The rejected fixed-price bid "doesn't reflect the same dollars as the $2.5 million projection," said Dave Warwick, manager of computer science engineering at BART. "The [Logica] estimate relates more to $3.3 million due to a number of caveats."

Now being completed in-house with a staff of 19, the system is currently operating alongside its 21-year-old predecessor during off-peak hours. Warwick said the completion is under budget and ahead of schedule.

To handle expansion of routes to suburban centers in the 1990s, the system's hardware will have to be upgraded, the panel said. It is currently operating on a Data General Corp. MV 10000 with a proprietary operating system purchased for BART in 1984. That computer is no longer being sold.

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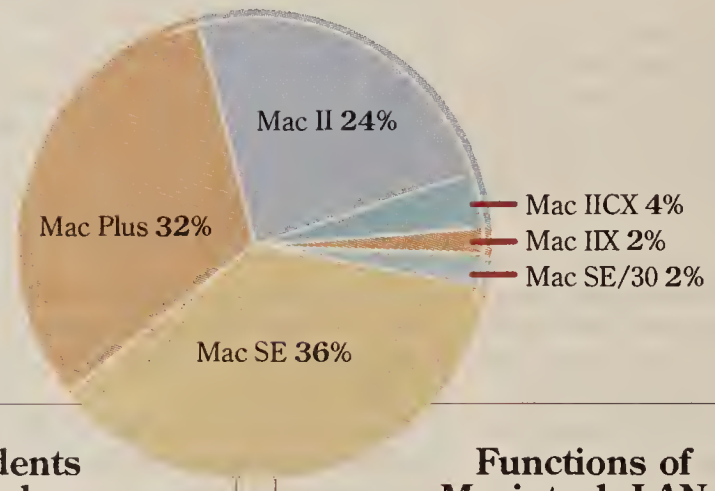
TRENDS

Macintosh

1989 installed base

Although older machines such as the Plus, SE and II still govern the present installed base, increased interest in the Motorola 68030 chip should boost the market share of the SE/30 and IICX

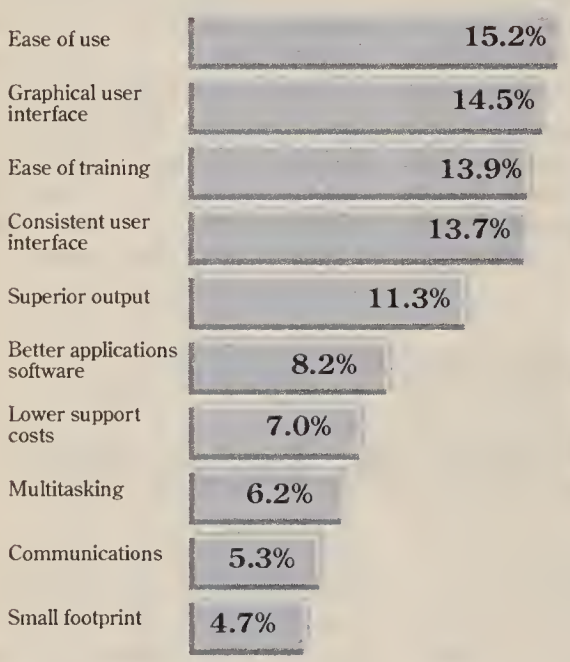
Percent of installed base among 200 survey respondents
Total units installed: 6,476



How respondents justify the purchase

Reasons why users choose the Mac over IBM PCs are its ease of use and the consistent and graphical nature of the interface. Users may soon be saying the same about Windows and OS/2 Presentation Manager

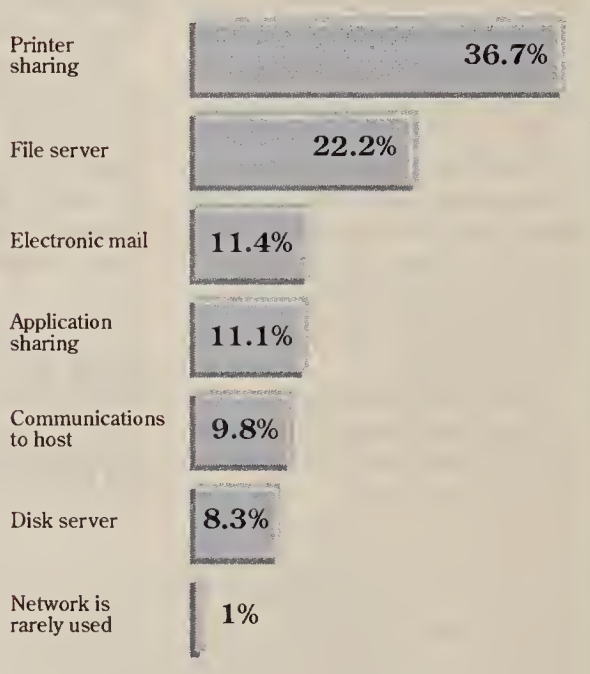
Percent of respondents
(Base: 200)



Functions of Macintosh LANs

Why are Mac LANs set up? Most often they're meant for sharing files, printers and applications, although type-talking also rates highly

Percent of respondents
(Base: 200)



Source: International Data Corp., Framingham, Mass.

CW Chart: Tom Monahan

INSIDE LINES

Splicing the tapes

Dun & Bradstreet Software has merged the internal mainframe- and midrange-based information systems operations of Management Science America and McCormack & Dodge at its brand-new headquarters in Framingham, Mass. The switchover occurred during the first weekend in July and involved moving some 30,000 tapes and leasing Boeing 707s to fly two IBM 3090s in from Atlanta, according to new D&B Software Chief Information Officer Ray Dicasali.

The secret's out

The National Computer Security Center, a computer security research branch of the National Security Agency (NSA), is being disassembled, a source said last week. "It's been gutted, at least on paper, and folded into the NSA," the source said. The source added that a major overhaul of the "Rainbow Books," the manuals detailing the design of computer security systems for federal government and military computers, is also in the works. The NSA, meanwhile, is as closemouthed as ever.

Distributed computing twist

Hard copies of "Phrack," an electronic newsletter for hackers and phone phreaks, have turned up in every major hacker investigation (15 in all) since 1988, according to David Bauer, a computer security expert at Bellcore. One of the techniques detailed in the newsletter is the way to modify the log-in program for Unix 3.2 so that it collects passwords of superusers, allowing the hacker to take control of the system. The password-capturing program has turned up on some 50 computers operated by telephone companies, Bauer said last week at the trial of Craig Neidorf, co-editor of "Phrack."

You want help?

IBM is readying a new service that will automate and standardize software problem determination and resolution, an industry source said last week. The service, designed to help IS managers run a smoother data center by detecting problems before the system goes down, will include software facilities for capturing failures in a system in real time, hardware and on-site training, the source said.

Preaching to the converted

It might have surprised some people to see 2,800 members of Guide International, a group of midrange and larger IBM systems users, thronging to hear Microsoft's Bill Gates deliver a Windows sales pitch for their keynote address last week in Chicago. But when Gates started off by asking how many of them had a PC on their desk that they used regularly, 80% raised their hands. More than 40% kept their hands up when Gates asked if they had at least seen a graphical interface in operation on a PC.

Printer needs attention

The Computer Emergency Response Team, a virus-fighting squad based at Carnegie Mellon University's Software Engineering Institute, is trying to track down a rumor of a new computer virus that attacks Apple Computer laser printers running Adobe Postscript and alters the default password contained on an EPROM in the laser printer. The only way to reset the password is to send the board to Apple for a $600 fix or write a routine that allows the user to decode the new password and then follow instructions in the manual for changing the password, wrote one virus newsletter reader.

The Franklin Institute Science Museum in Philadelphia is struggling with ways to make its computer system attractive and interesting when it allows visitors to peek through a window into the computer room, which houses the institute's Unisys minicomputers. "A gray box is still a gray box," said Richard Freedman, systems analyst. We, on the other hand, try our best to make Computerworld *attractive and interesting, so let's get together and swap data. Tips and queries should be directed to News Editor Pete Bartolik, (800) 343-6474, fax documents to (508) 875-8931, or dial up* COMPUTERWORLD *on MCI Mail.*

NEXT WEEK

Levi Strauss is looking at systems design and the IS function in bold new ways, thanks to director of information engineering **Donna Rund.** Rund believes that both the people and the applications must be more flexible, and the approach is paying off for the world's largest apparel manufacturer. Turn to Manager's Journal for a profile of Rund.

Cindy Charles

Integration Strategies takes a look at the challenge of integrating imaging systems and also features articles on TWA Getaway Vacations, Jones Trucking, the quest for desktop integration, an interview with Digital Equipment Corp.'s integration boss, plus an exclusive *Computerworld* survey on integration priorities.

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THE NEWSWEEKLY OF INFORMATION SYSTEMS MANAGEMENT

COMPUTERWORLD

INSIDE

IBM kick-starts SAA onto office track

Migration worry mutes user praise

Officevision plan hinges on LANs

Runaway program gores Sabre

IN DEPTH
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MARKETPLACE C ECUTIVE REPORT TRAINING
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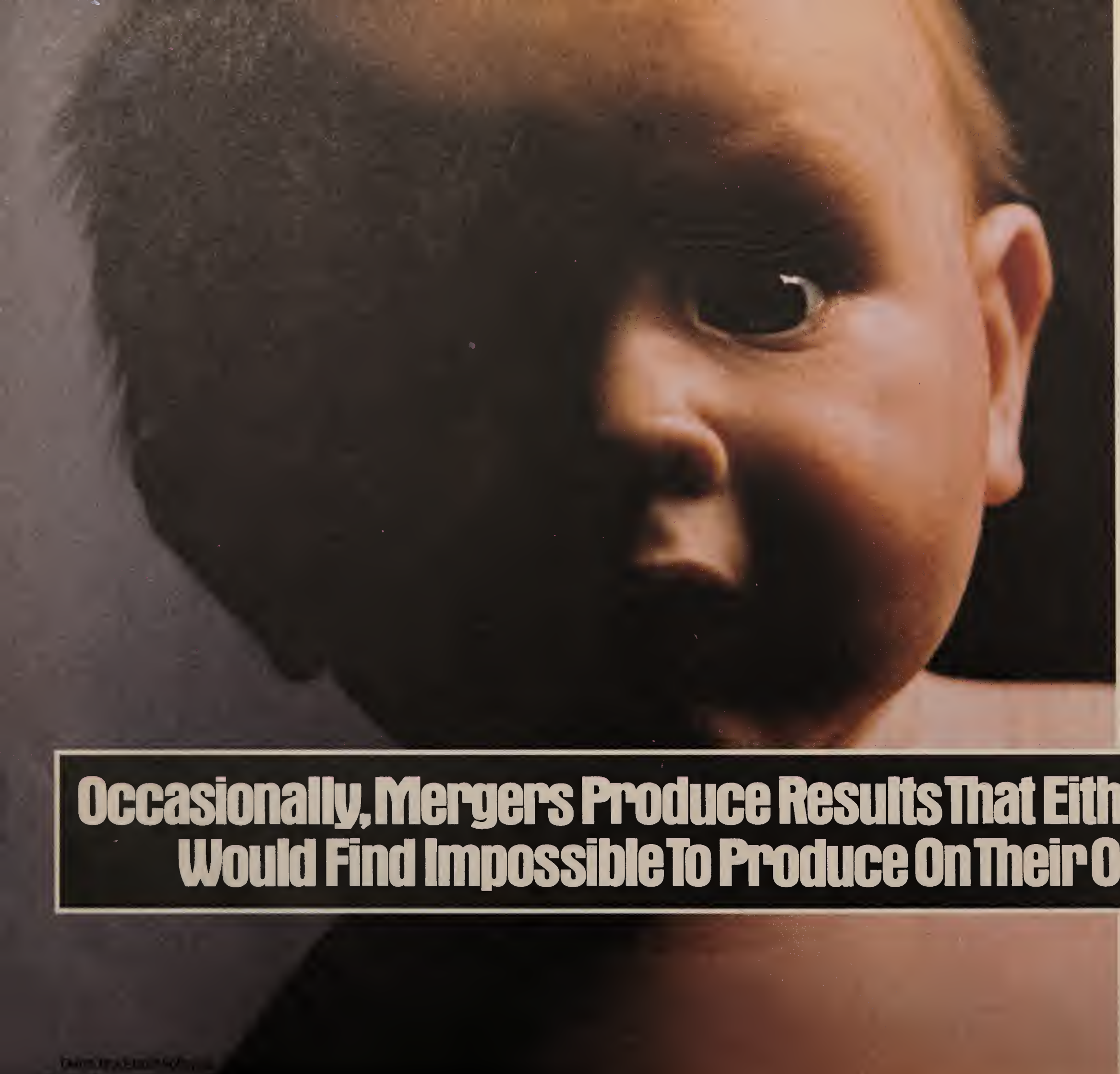
The newspaper for information systems management



Occasionally, Mergers Produce Results That Either Party Would Find Impossible To Produce On Their Own.

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